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Urban Household's Water Provision Children's Issues of Concern

**A Thesis presented for the Degree of
Doctor of Philosophy in the Faculty of Medicine**



**Department of Public Health and Policy
London School of Hygiene and Tropical Medicine
University of London**

By

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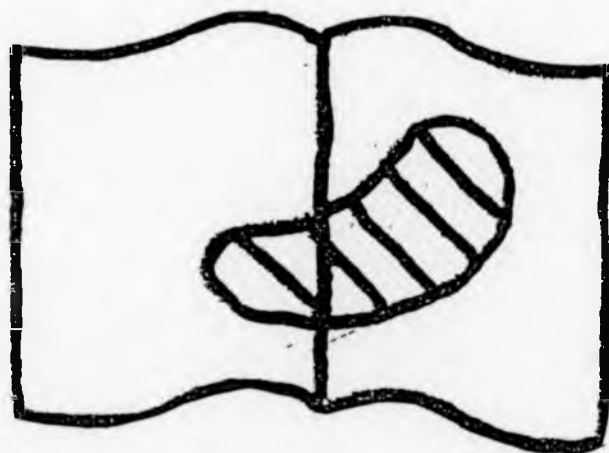
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Abstract

Extensive studies have been conducted on the impact of poor water supplies on children. Little account is taken on the information children possess and its effect on their relationship with their present water environments. This thesis explores this under-researched area of water and public health in developing countries.

Aims:

(a) To describe the role of children in the social organisation of collection and distribution of water and related health implications at household level. (b) To analyse key conceptual frameworks within which water is understood by children focusing on their roles and rights in household water provision and use

Methods:

A qualitative approach was adopted using methods, which include field observations, field interviews and focus group discussions. Data analysis explored children's involvement in the social organisation of household's water supply and how they conceptualise their roles and rights within their 'world of water'.

Findings:

Study findings provide evidence that: 1. Children are actively involved in the social organisation of household's water supply and in the sale and distribution of packaged drinking water. 2. Children perceive the task of water collection as a social obligation and custom that was handed down to them. 3. From children's conceptual standpoint, it is the fulfilment of the 'obligatory duty' of water collection that bestows the 'claim right to water' on children. 4. Children's perceived economic dependence on adults, meant children's access to water may only be secured by 'labour payments' through water fetching. 5. Children feel headaches, neck, chest and back pain, stiffness of the back and neck, general body aches and fatigue resulting from physical exertion. 6. Although water collection is perceived by children as lending a 'helping hand,' they still view the task as a 'hazardous' activity. 7. Power outages are perceived to impact severely on children's water collection activities and water rights.

Conclusion:

This thesis demonstrates that a better understanding of the traditional socio-cultural practice and the value placed on water is necessary in order to achieve children's rights and health vis-à-vis consumption and use of household's water in disadvantaged urban communities.

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List of Abbreviations

7-10	Study participant within 7-10years age group
11-14	Study participant within 11-14years age group
15-17	Study participant within 15-17years age group
18^	Study participant 18years and above
AU	African Union
CB	Cable Point Boy
CG	Cable Point Girl
CRC	Convention on the Rights of the Child
ILO	International Labour Organization
NEPA	Nigerian Electric Power Authority
NPHC	Nigerian Power Holding Company of Nigeria Plc
OAU	Organisation of African Unity (now the African Union)
OB	Otu-Ogwu Boy
OG	Otu-Ogwu Girl
OtB	Boy recruited from outside study communities (other areas of Asaba)
OtG	Girl recruited from outside study communities (other areas of Asaba)
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
WHO	World Health Organisation

Statement of Originality

The research account presented in this thesis was conceptualised, implemented, analysed and written up by myself. I have acknowledged all results and quotations from the published or unpublished work of other people.

As outlined in chapter three, two research assistants collected some data with my support and supervision. Other than that, the entire thesis as reported here was undertaken by me as my own work, with the support provided by my PhD supervisor at the London School of Hygiene and Tropical Medicine, Dr Carolyn Stephens and PhD supervisory panel members: Prof. Sandy Cairncross, Dr David Satterthwaite and Dr Karina Kelmann.

Charles Chukwuemeka Ofili

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Structure of the Thesis

This thesis is divided into six chapters. In chapter one, I present an introduction, followed by the immediate background and context of the present thesis, before concluding the chapter with the aims and objectives of the study.

In chapter two, I present a review of international literature on water provision, while in chapter three, I focus on methods and methodology that I adopted to achieve the study aims and objectives.

In chapter four, I present the main findings from field observations, while in chapter five, I present results of field interviews and focus group discussions.

I begin the discussion of study results in chapter six with a consideration of the study findings in the light of existing research studies. Then, I move on to the implications for current theory, before closing the chapter with the study conclusions, recommendations for further research and the lessons I learnt from conducting this research.

Photograph 1: Map showing the location of Nigeria



Source: Maps of world CD; Version 1: <http://www.mapsofworld.com/nigeria/nigeria-location-map.html>

Chapter One

Introduction

The urban water crisis in large cities of Africa is well documented, despite international rhetoric on essential human rights to water (Satterthwaite, Hart et al. 1996; McGranahan, Jacobi et al. 2001; WHO and UNICEF 2004a). Although the situation is the same for smaller cities, the crisis goes unobserved and undocumented.

The past three decades have seen a series of attempts to improve water access with the view that safe water supply and sanitation are important for the health of communities. Diarrhoeal disease impacts most severely on children killing an estimated 1.8 million people and 90% are children under 5, mostly in the South (WHO 2004a). Because diarrhoea was linked to unsafe water supply, inadequate sanitation and poor hygiene, past research efforts within the water sector focus essentially on children within this age group (Victoria, Smith et al. 1988; Chongsuvivatwong, Mo suwan et al. 1994; Molbak, Jensen et al. 1997; Dunne, Angoran-Benie et al. 2001). According to the World Health Organisation, 'improvements in drinking-water quality through household water treatment, such as chlorination at point of use, can lead to a reduction of diarrhoea episodes by between 35% and 39%' (WHO 2004a).

Although many governments and agencies in the South have promised to provide adequate domestic water supply for large numbers of people (McGranahan, Jacobi et al. 2001). In a good number of cases, the 'promises of free services for all, have in practice, usually resulted in some service for a few and little or none for the most' (Gilbert 1999). Conflict and political instability, high rates of population growth and low priority given to water and sanitation have been blamed for the slow rate of progress (WHO and UNICEF 2004a).

Past failures of governments in the South have led to the recent policy shift from a needs-based approach towards the demand-responsive approach being advocated by the World Bank. A demand-responsive approach is 'an attempt to reposition the community as a (self) service-provider within the wider development environment' (Nicol 1998). In practical terms, this approach shifts the responsibility for water

provision from government to the community, to define its service level based on its willingness and ability to pay for service development.

Concerns have been expressed that the demand-responsive approach failed to take account of emergency responses to water provision. Its main focus is, as Nicol put it, '...on how communities can access and maintain services in an ideal environment that may simply not exist' (Nicol 1998).

Emergency responses to water provision are frequent in Nigeria due to recurring state creation. New state creation, by forcing people to relocate, has led to an urban water crisis in the new towns and cities, amongst many other environmental and social problems (Ministry of Information Asaba 1996; National Population Commission 1998).

Asaba in Delta State is a small town with a public water supply, that was rapidly overwhelmed by the influx of population during early 1990's (Osadebay 1985; Ministry of Information Asaba 1996). The new state government responded by providing private boreholes to supply water to top government officials, while the rich and the elite resorted to self-supply. Public water schemes now appear to supply only the urban poor. They are scarce and poorly maintained with many families resorting to self-provision – from private vendors or the nearby river Niger.

Normally, 'children are the last to be consulted, but first to be affected by government's policy changes' (Nicol 1998) and as in most settings, women and children bear the burden of inadequate water supply not only in terms of direct health impacts but also in terms of the impacts of their role in water collection and bearing (The World Bank Group 1996).

Nicol noted that 'children are affected by their household water environments first and foremost as carriers and consumers of water' (Nicol 1999). In Asaba, children particularly play a major role in the complex social organisation of water collection and distribution, yet their cases are undocumented and their views on their situation unheard (Details in Pilot study 1—Appendix 1).

The immediate background and context of the thesis

This thesis, which focuses on the role of children in urban household's water provision in Asaba, was initially directed at exploring children's views on selected urban public utilities provision and related health impacts following the creation of Delta State. The decision to focus on the role of children in urban household's water provision was inspired by a pilot study that was conducted during the development of that study.

The results of the pilot suggest that children are more active in urban domestic water provision than credited to them. According to the participants, children's experiences and health concerns in providing water for households are habitually overlooked, or worse still, ignored by most adults. They pointed out that children are not only actively involved in household's domestic water supply, but also in the sales and distribution of packaged drinking water with severe health implications (Pilot study 1—Appendix 1).

Given my African socio-cultural background (that assign certain responsibilities to children) and our professional medical orientation in the South (that is principally disease rather than health oriented), the pilot study drew my attention for the first time to the practicalities and health challenges of children's 'traditional' duty of water collection and bearing as practiced in disadvantaged urban communities.

Listening to the views of these children, apart from being a refreshing change for me as an adult, was quite instructive and thought provoking. I was forced to reflect upon a number of our socio-cultural practices that have come to be accepted as part of the natural order of things. What constitutes a 'normal' task for children? Whose view of 'normal' task is being applied? What are the health implications of this sort of children's domestic task? These important questions needed to be addressed.

Theoretical and Methodological Approach

The research approach I adopted for this study starts from the premise that childhood is a social construction¹ while situating the field data within the human rights framework. Following from a pilot study (see appendix 1), I concentrated on children with the most direct experience of water collection and distribution. Taking case studies of children, I intended to address the following research questions:

1. What is children's involvement in the social organisation of household's water supply?
2. How do children understand the health and social impacts of their involvement in the social organisation of water supply?
3. How is water currently conceptualised by children in terms of their rights and responsibilities?

Aims of the thesis

The aims of this PhD thesis are:

1. To describe the role of children in the social organisation of collection and distribution of water and related health implications at household level.
2. To analyse the key conceptual frameworks within which water is understood by children focusing on their roles and rights in household water provision and use.

Objectives of the thesis

Through detailed case studies with children in Asaba:

- (i) To describe children's involvement in the social organisation of household water supply.
- (ii) To explore reported social and health related impacts of children's involvement in household's water supply.
- (iii) To explore children's understanding of their rights and responsibilities vis-à-vis water collection distribution and use.

¹ "Concerns about how the social sciences have traditionally conceptualised and dealt with children and childhood were leading to the developments of a new paradigm—the 'new childhood studies'—'from the largely social constructionist premises; that the child is not a natural category and that what a child is and how childhood is lived is structured by adult's norms, aims and culture.'" (James and Prout 1997)

Chapter Two

Literature Review

Literature Search

To provide an insight into the activities of children in household's water supply, I conducted a review of international literatures. The review was based on the analysis of literature available through the London School of Hygiene and Tropical Medicine's library, London School of Economics library, the British library, Delta State University Library and the Delta State's Government Library. It also involved visits to the offices of the IIED, WaterAid, UNICEF Nigeria, Delta State's Ministry of Youths, Sports and Culture, Women's Commission Asaba and the Delta State's Urban Water Board.

Electronic databases included in the review were, BIDS, Web of Science and Pub Med. Conference papers, textbooks, unpublished thesis and manuscripts from different sources were also included. In the review, I sought and focused on the issues that were raised by the preceding pilot study (Pilot study 1, Dec. 2001 to Jan. 2002).

The key words used for the electronic data search were; *water supply, *domestic water supply, *children's health, *carrying water, and *children's rights. The reviewed materials, based on their aims and design may be combined to form three major groups.

The first set of studies which examined quality and quantity of water in relation to child health (Esrey and Habicht 1986; Victoria, Smith et al. 1988; Esrey, Potash et al. 1991; WHO 1993; Chongsuvivatwong, Mo suwan et al. 1994; Genthe, Strauss et al. 1997; WHO 2002; WHO 2004a). Most of the studies reviewed focus on under-five children's vulnerabilities to disease particularly diarrhoea, while older children (5-17yrs) were generally excluded.

The second set of studies explored household's access to water in relation to health (Hebert 1985; Prost and Negrel 1989a; Cairncross 1990; Bukenya and Nwokolo 1991; Cairncross and Kinnear 1992; WHO 2000a; WHO 2000b; WHO and UNICEF 2004a; WHO 2006). Although a number of them reported that children have a part to play in providing water for household use (White, Bradley et al. 1972; Mensah 1999; Thompson, Porras et al. 2001), the specific role/s they play and the related health

implications as an independent subject of investigation appear to have received very little research attention.

The third set of essentially literary materials and studies that examined the issues of child rights, water and health (UNICEF 1989; Ityavyar 1994; Johnson, Hill et al. 1994; UNICEF-Nigeria 2001; United Nations Economic and Social Council 2002; UNICEF 2002b; Francavilla and Lyon 2003; UNESCO 2006). However, when these are compared to that of adults, there is relatively little material on the experiences of children.

This chapter is divided into three sections and will focus on the three major themes raised by the reviewed literatures. I begin section one with the issues of water quality and quantity in relation to child health. In section two, I present a discussion of the social organization of household's water supply and related health and social implications for children in the South. Finally, in section three, I examine the issue of children's right to water and its African challenges before presenting a summary of the literatures.

Chapter Two—Section One

Issues of water quality and quantity in relation to child health

Water supply is one of the fundamental requirements for sustaining life and the lack of access to adequate water leads to the spread of diseases that affects children. Africa has the lowest total water supply coverage of any region, with only 62% of the population having access to improved water supply (WHO 2000c). In global terms, the continent is home for 28% of the world's 1.1 billion people without access to improved water supply (WHO 2000c; UNICEF 2003b).

It was predicted that Africa would face increased population growth particularly in the urban areas over the coming decades. 'As a result, approximately 210 million people in urban areas will need to be provided with access to water supply services if the international coverage targets for 2015 are to be met' (WHO 2000c). The growth rate of some cities is said to be 'three times that of rural areas' (WASH 1992). It is not surprising therefore, that the cities with the most rapid growth also have the highest proportion of the population without access to services (WHO 2000b). 'With the exception of sub-Saharan Africa, the world is well on its way to meeting the drinking water target by 2015' (WHO and UNICEF 2004a).

The need for specific attention to urban children is founded on 'the recognition that cities are home to an increasing proportion of the world's children' (Riggio 2002). In 2002, UNICEF estimated that close to half of the world's children lived in the urban centres, particularly in the countries of the South (UNICEF 2002e). The current projection is that six out of ten children will live in urban areas of the South by 2025 (United Nations 2002).

'Despite the growing proportions of the world's children living in urban areas, most city authorities in the South remain ill-equipped' and city children often live without the most basic services (Riggio 2002). Diarrhoeal disease impacts most severely on under 5 children, mostly in the South. Eighty-eight (88%) of diarrhoeal disease was attributed to unsafe water supply, inadequate sanitation and hygiene (WHO 2004a), and the death toll from diarrhoea among children far exceeds that for HIV/AIDS among children (WHO 2004c).

Water quality and quantity

The importance of quality and quantity of water for children's health in general and diarrhoea in particular is evident from some of the reviewed literatures (Esrey and Habicht 1986; Cairncross 1990; Bradley, Stephens et al. 1992; WHO 2000c; WHO and UNICEF 2001; WHO 2004a). Thus the quality and quantity of water delivered and used for households is an important aspect of domestic water supplies, which influences children's health. Esrey and Habicht while reviewing studies on water provision spanning over thirty years provided the epidemiological evidence for the health benefits from improved water supply — particularly for young children—. The authors reported that improved water supply can markedly improve the health of children (Esrey and Habicht 1986).

This finding was reflected in subsequent studies that have addressed two distinct areas: (a) Water quality in relation to infant morbidity and mortality (Victoria, Smith et al. 1988; Esrey, Potash et al. 1991; Chongsuvivatwong, Mo suwan et al. 1994; Genthe, Strauss et al. 1997) and (b). Water quantity, particularly the importance of adequate quantity of water to public health (Cairncross 1990). In a review of 144 studies to examine the impacts of improved water supply and sanitation on a number of diseases, Esrey et al concluded that improved water supply and sanitation resulted in varying degrees of reduction in disease incidence and child mortality fell by 55% (Esrey, Potash et al. 1991).

Water service level also influences the incidence and prevalence of diseases particularly for children. Genthe and colleagues, in a case-control with an added cross sectional study involving 320 households, examined the relationship between the different types of water facilities—communal taps, private outdoor and indoor taps—and diarrhoea among pre-school children living in a developing community of South Africa. The result of the study suggest that a private outdoor tap is the minimum level of water supply in order to ensure the supply of safe water to developing communities (Genthe, Strauss et al. 1997).

While water quality is essential to health, the quantity of water available for household's use appear to be equally, if not more important than quality for children's health. Bartlett, in her contribution highlighted the cyclical relationship between

water quality and quantity for the maintenance of health. In her words, 'contaminated water contributes to outbreaks of disease, but also too little water makes it difficult to maintain the sanitary conditions that prevent contamination and which is essential for controlling the endemic disease that contributes so heavily to repeated illness and the death of many children' (Bartlett 2003).

Poor hygiene has been linked to diarrhoeal, trachoma and skin infections which may have been partly caused by lack of sufficient quantity of domestic water supply (Cairncross and Feachem 1993). The findings from the review of studies on hygiene behaviour and water availability by Prost and Negrel, show that the quantity of water that is used for children's hygiene is sensitive to its availability (Prost and Negrel 1989b page 14). However, water availability alone may not ensure hygiene in the absence of other specific hygiene behaviours such as hand washing (Cairncross and Feachem 1993).

Some studies have also linked the quantity of water available to households to the nutritional status of children. In Mueda, Mozambique, reduction in water collection journey resulted in a marked increase in the quantity and use of household water. Water used for food preparation also increased suggesting that water scarcity may have an influence on diet (Cairncross and Cliff 1987).

Evidence of the adaptational benefits of water interventions was provided in a study carried out in Pakistan. The study results reveal that households with storage containers linked to an in-house connection provided increased quantities of water that was critical in preventing stunting in children. However, limited benefits accrued to households that depend on yard taps or communal sources for their water (Esrey and Habicht 1986).

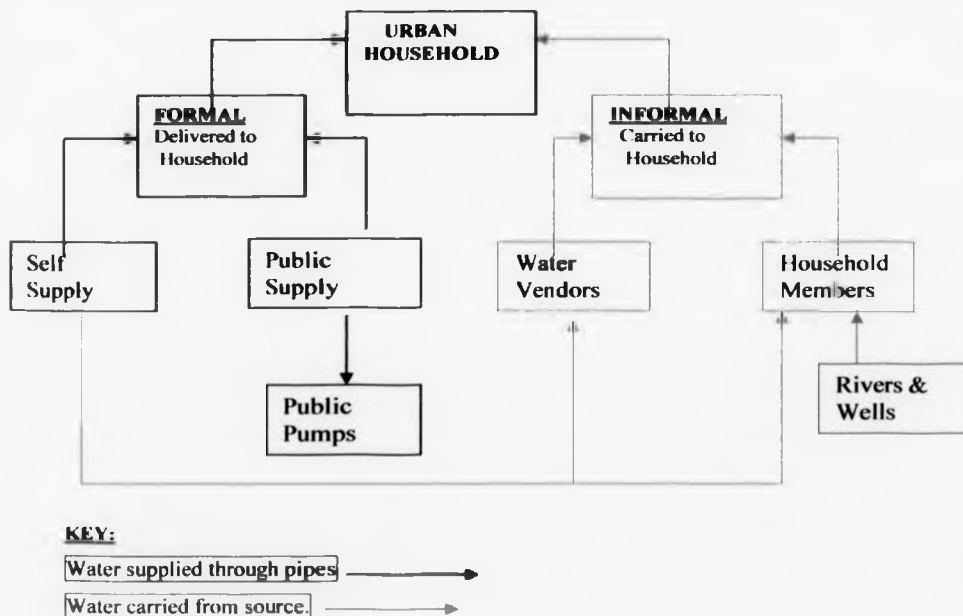
Lack of access to safe water increases the vulnerability of children to diseases because their immune systems and detoxification mechanisms are not fully developed. For these reasons, they are often less able to respond to a water-related infection (WHO 2004c). According to Genthe and colleagues, the acceptable standard of provision for young children is regular supplies of water piped directly into the house or yard (Genthe, Strauss et al. 1997). A summary of some of the reviewed studies is presented as appendix 2.

Chapter Two—Section Two

Urban household's water access

Materials on household water access in the South are quite extensive. However, two distinct access routes may be identified from the reviewed materials. For households in the South, water is supplied either via the formal or informal routes. In the formal route, water is distributed to households from the public network via an in-house connection or yard taps located within the household. In the informal route, either water vendors or household's members carry water from the source to households. The reviewed materials in this section of the document are structured and presented on the bases of the formal and informal routes. The diagrammatic representation built up from the reviewed materials is presented as figure 1.

Figure 1: Diagrammatic Representation of Urban Household Water Supply Route



Formal and Informal Routes

Governments and agencies in the South have repeatedly pledged their commitment to provide 'an adequate domestic water supply' in relation to people's normal domestic activity. This goal is yet to be realised as there are still problems with poor management of resources and inequality of access (Capacity, Church et al. 2001; McGranahan, Jacobi et al. 2001). A great disparity in water distribution which is usually sustained in the form of formal and informal distribution arrangements currently exists (Satterthwaite, Hart et al. 1996; Marvin and Laurie 1999; WHO and UNICEF 2004a).

The formal set-up involves the delivery of water through pipes to homes either as, 'Public supply'—delivered by the city's water department/private company via public networks, or 'Self supply'—water that individual homes supply themselves through in-house connection e.g. use of borehole. In households where water is neither public supply nor self supply, then it must be fetched and carried to the homes from the different water sources via the informal channels (WaterAid 2000a; Van Wijk et al 2001; Thompson, Porras et al. 2001b; Guarcello and Lyon 2003).

The proportion of households with piped water supply in East Africa was reported to have declined, while the water used by un-piped households almost doubled. Despite the decline in the proportion of piped households, they still use over three times the amount of water consumed by un-piped households (Thompson, Porras et al. 2001).

Formal Route: Water delivered to households via water pipes

Public Network Supply

With the limited pipe-water infrastructure in the South, only a small percentage of urban households are served (Komives, Whittington et al. 2000). Government statistics of the 1990's indicate that about one-fifth of urban dwellers in the South are without adequate access to safe water (McGranahan, Jacobi et al. 2001) and according to the WHO, the number of urban un-served in the South was 'rising sharply' (WHO 1997).

However, there are disagreements between governments as to the people that should be regarded as either 'served' or 'un-served'². Some governments treated people with access to public taps or hand pumps as being 'un-served' while others treated them as 'served' (WHO 2000b). Even in conditions where the government describes the population as being adequately served, the situation may still be far from being 'healthy' (McGranahan, Jacobi et al. 2001). In most countries in the South, wealthier and better educated urban households are more likely to have piped connections (Thompson, Porras et al. 2001).

In the past, water scarcity had failed to attract much attention when compared to water contamination, because the latter, as Cairncross put it, 'can affect everyone in the community, rich and poor alike, whereas water scarcity is not a serious problem for the middle classes and the elite' (Cairncross 1990). A study conducted in Accra, Ghana provides the evidence to support this claim. All wealthy households had an individual piped water supply and only 9% of low-income people had exclusive use of their taps. Poor urban residents without an on site connection purchase water from wealthier inhabitants and spend about 8.4 hours a week fetching water (Mensah 1999).

There are marked differences in consumption patterns between households with piped water supply depending on the level of service. Low-income households in most cases bear the direct consequences of high-income household's over-consumption. In Ghana, because of the consumption patterns of high-income communities, low income communities that relied on public taps received less water and more shortages than the high-income communities (Stephens 1996a).

In an earlier study of under-five children, Victoria et al adopted a population-based-case control method to ascertain the effects of water supply, sanitation and housing in relation to the risk of infant mortality from diarrhoea. The findings reveal that those who did not have a piped water supply to their house or their plot had a risk factor of

² **Served/piped:** Household with pipe-water infrastructure that is linked to the public network via either an in-house connection or yard tap for its water supply.

Un-served/Un-piped: Household is without pipe-water infrastructure or direct access to water supply. To meet household water requirements, members fetch and carry water from the source to their homes.

about five times greater than those with pipe water in their house (Victoria, Smith et al. 1988). In most cases, the long queues at public taps result in serious loss of time and energy in making repeated trips to store enough water for the households (Satterthwaite, Hart et al. 1996).

The spread of urban areas into larger areas of lower densities as growth and development occur, further compounds the problem of infrastructure provision (Abdullah 1997; World Bank 2002a). Inevitably, the piped water supply systems usually fall short of demand. It was estimated that over one-third of the urban water supplies in Africa operate intermittently. 'Piped systems were considered to be "functioning" by governments if they were operating above 50% of their design capacity on a daily basis' (WHO 2000a).

This service failure has major implications for the activities of children. A study in Ghana reported that water does not usually flow during the day but at night. 'Sleep is usually disrupted for people who do not have an onsite connection or have to share water with other residents'. The study further noted that 'older men rarely fetch water, girls over 7 years, boys of between 7-19 years and women are those who queue for water' (Mensah 1999).

Where there is frequent intermittence in the water distribution system, the inhabitants supplement their supplies either by storing water in water containers or building storage tanks, digging wells, boreholes etc (Tynan 2000). 'Although these devices help to reduce hourly peaks in demand and mask short-term interruptions for users, they are often neither properly protected nor regularly cleaned and disinfected, which creates considerable risk of contamination' (WHO 2000a). Water may be clean in the pipe, by the time it has been carried home and stored, often become heavily contaminated (Ahmed, Hoque et al. 1998; McGranahan, Jacobi et al. 2001).

Empirical evidence from a small sample of households in Imo State Nigeria, show that borehole water became heavily contaminated during collection and storage (Blum, Feachem et al. 1987). Roberts and colleagues conducted a randomized intervention trial in a refugee camp in Malawi. The study was undertaken to assess the ability of a water container with a cover and a sprout to prevent household contamination of water.

The findings showed that the water flowing from the source wells had little or no microbial contamination although collectors quickly contaminated their water primarily through contact with their hands (Roberts, Chartier et al. 2001). This is a major 'problem in households with small children who may dip dirty hands into a storage bucket or leave water scoops on the floor contributing to contamination' (Bartlett 2003).

In Ethiopia, diarrhoea prevalence in small boys was found to be significantly associated with drinking water dipped from storage containers although the water source and the quantity of water consumed were not significant risk factors (Teklemariam and Getaneh 2000). A further problem with intermittent water supply is that households may be forced to store water within or close to the home, thus leading to increasing risks from vector-borne diseases such as dengue fever (WHO and UNICEF 2004a).

Self Supply

The acute water shortages and frequent breakdowns in supply may result in a number of developments mostly in the form self supplied alternatives. Self-supply is water supplied in a form of in-home system but without any links to the public network system. They are usually privately developed water hydrants that draw water from boreholes. In most cases, water from such boreholes is of inferior quality and not fit for drinking. Generally, there is no monitoring of the water quality nor the operations of these private hydrants (Ahmed and Sohail 2003).

Self-supply may be by individual households or involving all community members. It may involve one or two houses, but sometimes it is stretched to involve more, if a large enough tank can be provided. Some water tankers go to such private sources to collect water that they supply to the public at a price. Concerns have been expressed on the quality and lack of monitoring of the operations of private boreholes. The water may not be fit for human consumption yet people are forced to use it because there are no alternative sources. Water tankers that visit these private boreholes have also been linked to the bad state of the roads and streets in which these boreholes are located as these roads were not meant for such vehicles (Ahmed and Sohail 2003).

In Metro Manila, a local entrepreneur drilled a well and piped it to a small number of families in the neighbourhood at 44 pesos per cubic meter. The water was however of poor quality (McIntosh 2003). In Karachi, Pakistan, public-private partnerships and private-private partnerships developed in response to the acute water shortages. An Awami (people's) tank is one of such developments. They exist in different formats—underground tanks constructed on public places or on private premises with the permission of the owner. Water is supplied to Awami tanks by commercial contractors enlisted either by the water authorities or by the communities themselves. Water is then carried from these tanks to individual homes by household members (Ahmed and Sohail 2003).

Informal Route: Water carried to the house

For households that are not connected to the public network and lack the financial income to be self supplied, water must be fetched and carried to these homes (Van Wijk et al 2001; Thompson, Porras et al. 2001b; Guarcello and Lyon 2003). There are two major ways of accomplishing this task. Water may be fetched and carried to households either by water vendors or by individual household members. Many of these water carriers obtain water from a range of sources which include public taps, private kiosks or water vendors (White, Bradley et al. 1972; Thompson, Porras et al. 2001; WHO and UNICEF 2004b).

White et al reported that physical factors such as whether or not a household was located in an urban area and distance to the source are important in determining the levels of water use (White, Bradley et al. 1972). In a follow up study (Drawers of water II), Thompson et al noted that the situation has changed given that economic factors have become more important than physical factors as determinants of levels of water use (Thompson, Porras et al. 2001; Howard and Bartram 2003; WHO and UNICEF 2004d).

Water Vendors

For many cities in the South, piped water supply is a luxury and most households use either standpipes or the services of water vendors. Estimates from different reports place urban households that are served by water vendors between 20% to 40% (Nicol

1998). In Onitsha, an urban market town in Nigeria, 90% of the population rely on the informal sector through the activities of vendors for their water supply (Whittington, D; et al. 1989). The findings in a study in Ghana show that about 25% of Accra municipality rely on water supplied by water tankers (Kariuki and Acolor 2000). In Karachi, Pakistan, there were about 5000 commercial water tankers distributing water to areas lacking water (Ahmed and Sohail 2003).

Water vendors collect water from various sources to supply to their customers. They serve a variety of households and those that are considered as regular customers are given priority if water becomes scarce (Nicol 1998). In Khartoun, Sudan, some vendors collect water in barrels from government taps to sell at three times the cost charged by the National Urban Water Corporation (WASH 1992).

In a classic study, Cairncross and Kinnear reported that the cost of water purchased from vendors did not lead to a significant reduction in the quantity of water procured, suggesting that in poorer communities there is a trade-off between the proportion of household's income spent on water and the proportion spent on food. The increased expenditure on water is accounted for by a concomitant decrease in food expenditure thus the increased expenditure on water was partly responsible for under-nutrition in children (Cairncross and Kinnear 1992).

This finding may need further clarification for the impacts of increased expenditure on water on children's nutrition in the South to be fully appreciated. Ogbuagu paints a vivid picture of adult-child relationship in a traditional African home during a meal. 'In serving the meal, the father gets the best part of the meat or fish followed by other adults. The child gets the leftover bits and pieces or whatever they are given by parental discretion. In other words, the child who needs the greatest nourishment for proper growth and development receives the least or leanest part of the diet' (Ogbuagu 1994).

The last three decades have seen an increased male involvement in water vending activities (Thompson, Porras et al. 2001). According to Seaforth, when men are enticed into the business of water vending, 'it often involves the use of some kind of technology or money' (Seaforth 2003). A good number of these male vendors use bicycles, hand carts and water tankers thus enabling them to transport large quantities

of water over relatively large distances (Kariuki and Acolor 2000; Thompson, Porras et al. 2001b).

A number of health related problems may be linked to the activities of water vendors. Bringing animals close to the water source can serve as a possible transmission route. Fresh water may be added to the residual water (e.g. water tankers), resulting in the contamination of supply.

Household Members

In the past, the major health goal of international agencies is to ensure that people are provided with a clean, reliable and safe water supply. Recently, this goal has extended to include the need to reduce the drudgery involved when people have to walk long distances to collect household's water (Moriarty and Butterworth 2003).

In the late 1980's a study was conducted in Mueda, Mozambique, to compare water usage in two villages. One was provided with a standpipe while the other remained without water supply. The study findings reveal that the reduction of the water collection journey in the village with the standpipe from 5hrs to 10min was associated with an increase in average water consumption from approximately 4 litres to 11 litres per person per day. The incidence of trachoma in the village without water supply was twice that of the village with the standpipe (Cairncross and Cliff 1987). Thus locating water sources closer to households has considerable impact on public health.

All people everywhere drink water, but domestic water in the South has the special characteristic that where it is not directly available, only some transport the water to the household (Drangert 1993; Mensah 1999). White et al reported that in a traditional African setting, it is the duty of women and children to fetch water for household's domestic use. In some areas of rural East Africa, mostly women were involved, still in others, children alone fetch water for households (White, Bradley et al. 1972 page 62).

However the quantity of water that can be transported by these women and children is not only determined by the distance and time, but by its reliability and potential cost as well (Howard and Bartram 2003). Each of these factors has significant implication

for children in the South. In this thesis, I shall concentrate mainly on the distance, time and cost as it relates to children.

Distance

Household's distance to the water source appears to have a great effect on its water consumption and use with unique challenges for children from un-piped households. White et al reported that water use tends to be higher very near the source and then high but of uniform level at distances up to the critical limit of one mile. The explanation for this phenomenon was that women living within one hundred feet of a source go more frequently, whereas those at the intermediate distance are more likely to take washing chores to the source than those living nearer or farther (White, Bradley et al. 1972 page 127).

In a study conducted in Imo State, Nigeria, Black noted that 'reducing the distance to the water supply is more important than improving its quality for making an impact on child health. This is mainly because the quantity of water used in the home for non-survival purposes, such as washing, does not dramatically rise unless the source is very close by' (Black 1990).

The evidence for the observed relationship between distance to the water source and household's water consumption was provided in a review of a number of studies on water use and water collection behaviour. Cairncross suggests that there is a clearly defined general response in water volumes used by households in relation to accessibility (Cairncross 1990). As the water source is brought closer to the homes, households water consumption increases appreciably until it reaches a certain threshold distance at about one kilometre. From that point, bringing the water source closer does not bring about any appreciable increase in water consumption until it is less than 100 metres or 5 minutes collection time from the households (Cairncross 1990; Cairncross and Feachem 1993; Cairncross, O'Neill et al. 2003).

Studies of the interaction between water accessibility and quantity in order to assess how health may be influenced, most studies focus on explaining how increased water accessibility equates to increased volumes between service levels. Those who fill the 'access gap' between the service level of households with an in-house connection

(piped) and households without an in-house connection (un-piped) appear to have attracted little research interest.

According to Bradley, there is a strong link between water access and children's activity patterns in household's water collection (Bradley 1994). The burden of water collection appears to rest more on the shoulders of children living in poor urban areas. Thompson et al reported a general decrease in the average distance to water sources in the urban areas of East Africa—the un-piped houses walked on the average, less than 100m to the water sources (Thompson, Porras et al. 2001 page 61). The authors also noted a concurrent increase in 'the number of child drawers as well as in the number of males, notably teenagers, collecting water for commercial purposes' (Thompson, Porras et al. 2001 page 59). In effect, an increased number of child drawers have accompanied the general decrease in the average distance to water sources.

Time

In theory, the reduction in the average distance to water sources is expected to translate into time-savings because lesser time will now be spent on water collection activities. For un-piped houses in the urban areas of East Africa, one study found that the average time actually increased, despite the relatively shorter distances to the source (Thompson, Porras et al. 2001).

Two reasons were advanced for this increase in the average water collection time. The first, according to the authors, is the time spent queuing for water. The second reason is the increase in the number water collection trips as a result of the increase in water use by un-piped households (Thompson, Porras et al. 2000; Thompson, Porras et al. 2001).

There is a need to understand the effect of time-savings on decisions concerning children in household's water provision. White et al described the case of a woman who had so little time left after labouring in the farm that she delegated the task of water collection to children (White, Bradley et al. 1972). A recent study in Yemen, involving children between 6yrs to 14 years was aimed at exploring how water access affects children's work. Specifically it examined the relationship between household water access and children's involvement in schooling and income generating work. The findings reveal that children's activity status varies significantly with household

access to public water connections. Many of the children from households without access to water were reported to have lesser school attendance, were more engaged in income generating work and played significant roles in water collection when compared to those from households with water access. The study concluded that the availability of safe water supplies affects parent's decisions concerning their children's activities.

The lack of ready access to water poses significant time burden that will leave the parents with less time and energy for other productive activities, if they were to take over the responsibility for water collection. In such situations, children are likely to bear the burden of water collection (Guarcello and Lyon 2003).

While the study findings lend support to the fact that an improved water supply is beneficial to children, little is known of the direct health impacts as the study focused essentially on school attendance and children's involvement in income generating work.

The Cost of water

The urban water supply shortfalls in many countries of the South have prompted much pressure from both inside and outside the countries concerned to find conclusive solutions. In the past, water was provided free of charge in Nigeria with direct subsidies from the government. Over the years, the notion of 'free social goods' attached to water has gradually changed. With the introduction of user fees, the current water tariff in Nigeria is estimated at 50 Naira/ m³ (Global Water Intelligence 2001). According to Thompson et al, water is significantly more expensive to obtain in urban areas (Thompson, Porras et al. 2001).

In this direction, several studies have been conducted using the contingent valuation method to determine the willingness of the poor to pay for services. Most of the studies concluded that reselling and vending activities indicate consumer's ability and willingness to pay for water service (Whittington, D; et al. 1989; Whittington D et al 1990; Katko 1991; Whittington and Choe 1992).

Respondents in a study in Morocco, despite having reliable and free stand-post service, expressed the willingness to pay 7 to 10% of total household expenditures for individual water connections and subsequent commodity charges (McPhail 1993).

Cairncross however warned, that 'the temptation is to over estimate the willingness of consumer to pay' and assume that 'the ability to pay a certain amount implies a willingness to do so' (Cairncross 1992).

In Faisalabad Pakistan, empirical observations show that even after connecting to the pipe water network, some households continue to augment it with water from alternative sources. Based on the study findings, Reddy concluded that the willingness to pay for water may be influenced by extra economic factors such as low opportunity costs of women and children as well as attitudes towards female labour and public goods (Reddy 1999).

The decision to pay or not to pay for water may be influenced by the value (or cost) placed on the labour time spent by women and children in fetching and carrying water for households. This according to Seaforth, highlights some of the 'hidden costs' that women and children have to pay every day for not having easy access to water (Seaforth 2003).

Those directly affected by unsafe water are the poor who are not only less likely to have access to safe water and sanitation, but also less likely to have the financial and human resources to manage the impacts. Hence the 'cost' of lack of access to safe water is reflected in the day-to-day investment of time to collect water and in the burden of disease arising from water collection, including injury and contact diseases such as schistosomiasis (WHO 2004c).

Given children's economic dependence on adults, the economic concepts of the 'ability and willingness of the poor to pay' excludes the views of children (Whittington, D; et al. 1989; Whittington and Choe 1992). Yet, from the viewpoint of poverty defined by monetary income, estimates carried out using the international poverty line show that around the world, half of the poor population is made up of children (Minujin, Vandemoortele et al. 2002) and more than half of them are urban (de la Barra 2003).

In the past, the size of the water container and household location were the most important determinants of water consumption in households without an in-house connection (White, Bradley et al. 1972). Thompson et al reported that 'household's level of wealth is now the most important factor, followed by the cost per litre of water. Thus consumption seems to have become more strongly influenced by economic factors' (Thompson, Porras et al. 2001b).

The fact that the countries of the South are the home to some of the poorest people on earth, therefore raises serious concerns for water access that is completely dependent on economic factors (Yaron 1998). Concerns have also being expressed over water privatisation in the South and its impacts on poor households (Appendix 3). Apart from prevention of disease and illnesses, improved water supply in the form of 'in-house' connections can also bring about indirect health benefits such as improved quality of life (wellbeing) and decreased expenditure on medical expenses (Younes and Bartram 2001). A summary of some of the reviewed studies is presented as appendix 4.

The Health Implications of Fetching and Carrying water

Gaining access to clean and affordable water is a daily struggle for women and children in most of the world's poor households (Mensah 1999; WaterAid 2000a; Amnga-Etego 2001; UNICEF 2002c) and water containers of all shapes, sizes and materials are used to fetch and carry water from the source back to their homes.

Carrying a load is stressful both physiologically and bio-mechanically (Casey and Dockrell 1996), and having to carry water for any distance limits the amount that households would have otherwise used if it were available by an in-house connection. In most cases many households with young children use far less water than they really need (Bartlett 2003).

The technique of carrying these containers differs between men on one hand and women and children on the other. When men are drawn into the business of providing water, it often involves the use of bicycles and hand-driven carts (White, Bradley et al. 1972; Thompson, Porras et al. 2001). However, women and children spend hours fetching water in plastic or metal containers which are either carried on the head, back, hip, shoulder or by hands making severe nutritional demands as well as placing extreme strain on the skeleton of children (Dufaut 1988; Seaforth 2003).

Nutritional demands

A lot of time and energy is required for water collection with the resultant long-term effects on health due to its nutritional demands on the body (Page 1996). This is because carrying heavy loads over distances require energy which comes from the

individual's metabolised food, causing children to burn calories they depend on for adequate nutrition (Bartlett 2003).

The amount of energy expended while carrying out the task of water collection is determined by the distance and the terrain traversed by the child (Dufaut 1988). For this reason women and children are frequently exposed to malnutrition, anaemia and water related diseases which makes them susceptible to other diseases as well (Dufaut 1988).

The different methods of carrying water makes various energy consumption demands on the carrier and this varies according to physical ability, nature of the terrain, distance, weight and method of carrying the load. From an ergonomic point of view, the International Labour Office recommends a maximum load of 25 to 30kg for women (International Labour Organization 1988).

Casey and Dockelly in their contribution, noted that no physiological or biomechanical guideline exists on the load a child is supposed to carry (Casey and Dockrell 1996). In terms of energy consumption, carrying a load with a yoke appears to be the most economical, followed by the load carried by hand, then by the hip. Carrying water on the back and head came next while the shoulder position requires the most energy (Dufaut 1988).

Skeletal demands

Apart from the nutritional demands, carrying excessively heavy containers puts extreme strain on the skeleton and this can contribute to bone deformities and an early onset of arthritic diseases (Page 1996). Carrying heavy loads of water has a great impact on children's bone developments, which has been linked to several health problems. The first is the premature ageing of the vertebral column, which can be further complicated by several other factors of which overwork is the most important. This premature ageing of the vertebral column may result in arthrosis—a degenerative rheumatism. In addition, children who carry large vessels of water from an early age may suffer damage to the neck, head and spine (Nicol 1998). For these reasons they are prone, 'to experiencing health problems such as headaches, general fatigue, pains in the neck, chest, back and waist' (Thompson, Porras et al. 2001). In Kenya, 'Kikuyu bursa', an osteo-arthritis of the soft tissues of the knee is caused by load carrying (Curtis 1986).

Carrying water on the head requires strength in the neck and considerable skill which as Dufaut noted, 'is often acquired at around nine years old' (Dufaut 1988). Neck injuries may occur when children slip and fall while carrying heavy loads on the head (Maclean 1994). In Bangladesh, 50% of the people treated for broken necks fell while carrying a heavy load on the head. A broken neck can have serious consequences and can even cause paralysis. It was also reported that a special method of operating the thyroid gland had to be developed for Kenya women because of their enlarged neck muscles due to carrying heavy loads on the head (Curtis 1986).

Carrying water on the back forces the carrier to walk in a stooping position with an added risk of noticeable cranial depression and severe headaches particularly for those who adopt the use of a head strap (Curtis 1986). In addition, the organic tissue of the vertebral column undergoes internal degenerative changes resulting in a deformity known as cyphosis. The clinical symptoms of cyphosis are work related pain and impaired movements that often require considerable stretching before normal mobility can be restored. Dufaut further noted that cyphosis may progressively result in ankylosis—a condition common among people who carry water on their backs (Dufaut 1988).

Skill and muscular strength is required to carry water on the hip and this method has been linked to the asymmetrical muscular development and/or pelvic damage. Children who carry water, especially on their hip or shoulder, run a very high risk of developing a deformity known as scoliosis. This is because their bones are still growing and the epiphysis of the bones have not yet closed (Dufaut 1988). Carrying water on the hip may also cause pregnancy and child birth problems for girls due to pelvic bone deformity (WaterAid 1996).

Carrying water by hand is more tiring than any other method (Dufaut 1988). It was reported that in hand carriage, the arm muscles involved were close to fatigue after 2.5 minutes, while with the same load, the shoulder muscles had not fatigued until after 15 minutes. Carrying water by hand may also result in marked side bending of the trunk and poor posture (Casey and Dockrell 1996).

Chapter Two—Section Three

Children's right to water, duties and responsibilities

Historically, water has been long recognised as one of humankind's most precious resources even by early civilisations (National Research Council and Safe Drinking Water Committee 1977; Rylander 1994; Barzilay, Weinberg et al. 1999). For this reason, it is often viewed by most as a public trust or a common pool good and democratic and/or community involvement are usually required for its management (Yaron 1998; Amnga-Etego 2001).

The 1993 World Conference on Human Rights held in Vienna, marked the turning point in the advocacy for water as a human right. Before the conference, 'Human Rights' used to be understood by many in the limited sense as referring specifically to civil liberties and political freedoms. The conference not only brought a fuller understanding of this concept, but also resolved that the lack of access to basic services such as water and sanitation amounts to denial of human rights (Calaguas 1999; Oxfam 2000a).

According to UNICEF, violations of civil and political rights are often linked to the root causes of preventable death and illness. Poorly functioning health system or disease may not be the only cause of the death of a poor child. A number of underlying reasons, including the child's and/or mother's access to water, health care, adequate nutrition and other resources were reported as the root causes of preventable death. For these reasons, human rights cannot be separated from human needs (UNICEF 1999).

Convention on the Rights of the Child

The 1989 Convention on the Rights of the Child (CRC) is a United Nations agreement that spells out the range of rights that children everywhere are entitled to, as well as sets the basic standards for children's well being at different stages of their development (UNICEF 1989). Children's rights are human rights because the Convention on the Rights of the Child is a human rights instrument that was inspired by the Universal Declaration on Human Rights. As Pais put it, 'they are not special rights but fundamental rights inherent to the human dignity of every person' (Pais 1999).

The body of rights enumerated in the Convention, are the rights of all children everywhere, whether in the North or South, in urban or rural areas (Oxfam 2000b; UNICEF 2002a). As an example, children living in rural areas may have fewer opportunities for a good education or less access to safe water than children living in cities. The Convention states that such disparities—within societies—are also a violation of human rights.

According to Bartlett, governments failure to respond to children's need by providing adequate water for households, undermines the foundations of 'rights' and 'proper' childhood as proposed by the CRC (Bartlett 2003). The CRC thus represents a major shift from the situation where children are viewed as mere recipients of services or beneficiaries of protective measures, to that of active subjects of rights and partakers in actions affecting them (Pais 1999).

The Convention on the Rights of the Child, by setting the standard of children's well-being within the rights framework, implies that 'right' is a far more powerful concept than 'need' (Boyden 1997). Thus children's rights can no longer be viewed as an option, a favour or kindness to children, or as an expression of charity because rights engender obligations and responsibilities that must be respected by all (Pais 1999).

The 'Convention' is therefore seen as important advance on the earlier concepts of 'basic needs' because it is not just a general statement of good intent, but an instrument legally binding those states that ratify it (Boyden 1997). According to Cantwell, the convention is 'an unprecedented framework for presenting children's global needs—since it is in response to needs that rights are formulated' [Cantwell 1989; cited in (Boyden 1997)].

The focus is no longer limited to meeting children's needs, but on the recognition and realisation of their human rights. This in the words of Pais means 'acknowledging human rights as a question of entitlement and of a consummate responsibility to ensure their effective enjoyment'. Entitlement goes beyond mere theoretical recognition but implies the creation of situations in which children can effectively enjoy their rights (Pais 1999).

The Rights Based Approach to Water Provision

The epistemological foundation of the human right to water lies in the interest theory. Advocates of this theoretical approach argue that the principal function of human rights is to protect and promote certain essential human interests. Hence the principal focus is on identifying the social and biological prerequisites for human beings leading a minimally good life (Nickel 1987).

In November 2002, the United Nations Committee on Economic, Social and Cultural Rights adopted the 'Human Right to water.'³ The General Comment states that; '...the human right to drinking water is fundamental for life and health. Sufficient and safe drinking water is a precondition for the realisation of all human rights.'

Under this right, everyone including children, is entitled to 'sufficient, affordable, physically accessible, safe and acceptable water for personal and domestic uses' (Shaffer 2002). Poor water provision violates children's rights—not only to survival and health, but also to a decent standard of living' (UNICEF 1989; Bartlett 2003). Human Rights therefore offer a promising framework to address many of the issues of children in water provision.

Contemporary human rights law also identifies three groups of agents: 1. Rights-holders—all human beings belong to this group simply because of our humanity. 2. Duty-bearers—States are identified as the principal duty bearer in their respective countries and 3. 'Other actors'—represented by those who provide services such as the private or civil society while States are expected to act as regulator or facilitator in such arrangements (Moser and Norton 2001). 'As rights-holders, children have active roles to play in the enjoyment of their rights and in helping to define how their rights are to be fulfilled' (UNICEF 1999)

According to Pais, the rights based approach 'means describing situations not in terms of human needs, or areas of development, but in terms of the obligation to respond to the rights of individuals. This empowers people to demand justice as a right, not as a charity' (Pais 1999)

³ The draft of the General Comment on the right to water can be found on <http://www.citizen.org/documents/therightwater.pdf>.

In spite of this, 'needs' and 'rights' are not mutually exclusive but are inextricably linked to each other. Many of the interdependent and interrelated children's human rights that the CRC codifies are based on needs, such as the right to the highest attainable standard of health, to education etc. However, rights 'cannot be realised if needs are not met, but simply meeting needs is not enough'(UNICEF 1999).

There are three main distinguishing features of the rights-based approach:

- The first is that all rights are equal and universal.
- Secondly, all people (including children) are the subject of their own rights and should be participants in development, rather than objects of charity.
- Lastly, the rights-based framework places an obligation on states to work towards ensuring that all rights are being met (Collins, Pearson et al. 2002).

The traditional needs-based approach was not sufficient and real improvements in children's lives required a shift in thinking and efforts to reflect a rights-based approach.

Challenges of the Rights Based Approach

A key issue in the 'universal' application of child rights is the notion of 'child'—which is dependent on local meanings and practices (Stephens 1995). There is a large body of literature on the social construction of 'childhood' (Fernea 1995; Mayall 2000; Makhoul, Ghanem et al. 2003; Kellett, Robinson et al. 2004; Masson 2004). A comparative historical and cross-cultural analysis 'reveals a variety of childhoods rather than a single, simple phenomenon' (James and Prout 1997). Boyden argues that the twentieth century conception of childhood—essentially those of the white, urban middle class—that was exported to the third world, has had the effect of rendering unacceptable or even criminal the working class life and many children's everyday activities (Boyden 1997).

The Western values that are dependent on an independent and rights-bearing individual are in opposition to the ideas of social personhood embedded in several African ethnic communities. Africans practice a collective cultural family system that places the welfare of the extended family above the interests of the individual (Ogbuagu 1994; Pearce and Falola 1994; Akinseye-George 2001). Thus in the area of rights, African attitudes towards children and childhood are totally different from the western scenario (Caldwell 1989; Pearce and Falola 1994). The dichotomous

relationship between work and childhood—where children belong to the ‘non productive world of lessons, games and token money’ (Zelizer 1985)—is not present in this collective cultural construction (Antony 2003).

The Organisation of African Unity (now the African Union) at its summit in Addis Ababa in 1990 adopted a charter on the rights and welfare of children. The African position is that ‘*there can be no rights without responsibilities*’ (OAU 1990). At the heart of the CRC, is the Western ideological emphasis on ‘individual rights’ and ‘entitlements’. Article 31 of the CRC emphasises the ‘*right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts*’ (UNICEF 1989).

The African charter however gives emphasis to ‘collective rights’ and ‘responsibilities’. Article 31 of the African charter states that, ‘*every child shall have responsibilities toward his family and society, the state and other legally recognised communities and the international community*’. Further down it reads, ‘*the child is duty bound to work for the cohesion of the family, to respect his/her parents, superiors and elders and assist them in case of need*’ (OAU 1990). Ityavyar reports that between the age of 5-10years in pre-colonial Nigeria, children started following their parents to the farm and learnt to do work considered appropriate for their age (Ityavyar 1994).

Compared to the CRC, the African charter is considered by some, to be a radical document that deals with human rights in a uniquely African way (Amadi 2002). Most African governments therefore ‘..regard the African human rights system as “*our own*” while often viewing the United Nation’s as foreign’ (Akinseye-George 2001). This has major implications for the understanding of children’s roles—and rights—in water collection and consumption in an African setting.

Children and the task of water collection

A study was conducted to explore possible correlations between chores and health using survey data sets from six countries-Guatemala, Zambia, Peru, Guinea, Brazil and Kazakhstan. The findings from the study showed that the health of children without household chore responsibilities appear not to be better-off than those spending at least four hours daily on household chores.

The study results also revealed that some types of chores appear to have more impact on health status than others. Children who spend long hours each day carrying water were likely to have more serious immediate and long-term health consequences than the same number of daily ours spent looking after younger siblings (Francavilla and Lyon 2003).

Tovo and Kielland while reviewing the operational implications of child labour and children's time allocation in Africa noted that 'the appropriate question isn't: Do you work or not? But rather how much do you work and what do you do?' (Tovo and Kielland 1999). Initially, the International Labour Organisation (ILO) advocated the total eradication of child labour in the South. But it's more recent policy makes a distinction between child work and formal labour or employment; between family labour and labour in domestic chores—such as fetching and carrying household water—because exploitation or danger resulting from children's activities in the home is believed to be far less likely than in situations where children are employed by non-related adults in industry, commerce or services (Boyden 1997).

According to the International Labour Organisation (ILO), child labour refers to situations where children are engaged to perform domestic tasks in the home of a third party or employer that are exploitative (International Labour Office 2004). This definition excludes children who do the same amount of work under similar conditions in their own homes. International discourses on child labour further complicates the situation by providing broad and sometimes overlapping definitions for the activities of children in household's water collection. Some reports group children's water collection activities at the household level under the umbrella of 'domestic chores' while referring to these tasks either as 'light work' or 'helping hand' activities (International Labour Office 2004).

Water collection activities of children appear to attract very little political and research attention at the household level. In South Africa, a study was aimed at exploring the activities of children engaged in paid and unpaid domestic work. The analysis was to include activities performed in children's own household without pay. Although the data collection included household access to water and the number of hours spent on this task, water and firewood collection were excluded in the first step of the analysis of households chores. In the words of Budlender and Bosch, 'as this is

not always regarded by economists, policy makers or ordinary citizens as part of housework or domestic work' (Budlender and Bosch 2002 page 36). For that reason, the study could only provide a demographic profile on water collection activities of children as questions relating to health, 'safety and other potential harmful effects were not asked in respect of these activities' (Budlender and Bosch 2002). While the study provided an indication of which groups of children might be affected, it failed to document the actual health effects.

Right of Participation

Urban children may live in a wide range of circumstances and experience different childhoods, but one condition that is common to all, is the fact that they are rarely asked how they feel about their living situations [Kruger cited in (Bartlett 2002)]. It is taken for granted that their parents and guardians know how they feel and what they need (Kruger and Chawla 2002). The notion of asking children their views directly is rarely entertained and is usually seen as unnecessary (Save the Children 1995).

The CRC emphasises not only survival and healthy development of children but also a voice in defining and responding to issues that concern them. Articles 12 & 13 of the CRC specifically called for the inclusion of children's views in decision-making processes (UNICEF 1989). Several organisations, groups and individuals have since expressed concerns over the neglect and violation of the participatory rights of children (Qvortrup 1990; Johnson, Hill et al. 1994; Stephens, Patnaik et al. 1994; Milkie, Simon et al. 1997; Kruger and Chawla 2002).

When children are even consulted and are given a chance to identify their problems, they can hardly make changes on their own, since adults hold the reins of power (Driskell 2002; Bartlett 2002a). This is the critical difference when the movement for children's rights is compared to that of women's rights. Women have a potential or actual political power that children lack⁴. When children even initiates project themselves, they will still need adults who will stand beside them and ensure that they are treated with respect (Chawla 2002).

⁴ For example, women as they become empowered can run for office and other positions of influence or even elect politicians that are responsive to their needs. Children cannot.

Summary of the Reviewed Literatures

Water is essential to life and the lack of access to adequate quantities leads to spread of diseases which impacts most severely on children. Children are less capable to respond to infections when compared to adults because their immune systems and detoxification mechanisms are not fully developed. In addition, children have less body mass, making water related toxins more dangerous to them at concentrations that are relatively harmless to adults (WHO 2004c).

The current focus on urban children is based on the projection that six out of ten children will be living in cities by 2025 (United Nations 2002). Yet most cities authorities in the South remain ill equipped and urban children often live without the most basic services (Riggio 2002). A review of international literatures show that the adverse health effects of unsafe and inadequate quantity of water especially with regard to children are well documented. However, most of the studies focus on under-five children's vulnerabilities to disease, particularly diarrhoea while older children (5-17yrs) were generally excluded.

Although the activities of children in fetching and carrying water for un-piped households were reported to have increased as the distance to the water source was shortened, the social and health impacts on children as they fill this 'access gap' between service levels appear to have received very little research attention. While some studies addressed the impacts of household's water access on older children (6yrs and above), they provided little information on the direct health implications. Their main focus was on social variables such as education and/or child work/labour (WaterAid 2000b; Francavilla and Lyon 2003; Guarcello and Lyon 2003).

Children are rarely asked how they feel about their living situations because it is taken for granted that their parents and guardians know exactly how and what they need (Kruger and Chawla 2002). However, the Convention on the Rights of the Child emphasises not only the survival and healthy development of children but also a voice in defining and responding to issues that concern them (UNICEF 1989). This thesis aims to fill this gap in knowledge by exploring the roles and views of children that are actively involved in household's water provision.

Methods and Methodology

Methods and Methodology

Chapter Three

Methods and Methodology

Introduction

The subject of most studies on water and children, as Nicol puts it, 'can often be summed up as the impact of poor water supplies on children; but this does not take account of the information children possess and its effect on their relationship with their present water environments' (Nicol 1998).

Against this backdrop, I wished to describe, firstly, the role of children in the social organisation of collection and distribution of water and related health implications at household level. Secondly, to analyse the key conceptual frameworks within which water is understood by children, focusing on their roles and rights in household water provision and use. These aims fundamentally determined how the research was approached and conducted.

In this chapter, I provide information on the study setting, the follow-up pilot study (pilot study 2), and fieldwork that was conducted before the start of the main study. I detailed the methodology and methods that were used to meet the study objectives. Following this, I move on to set out how the research was conducted providing information on the recruitment of children and stating reasons for their inclusion in the study.

Having detailed the research from the fieldwork, through the research design to actually conducting the research, I concluded that part of the chapter with an outline of how I carried out the data analysis.

I considered the ethical implications of this kind of research stating the steps I took to address these ethical challenges. I spent some time discussing some unanticipated field difficulties and how I addressed them. Finally, I reflect on my position as an adult researching into the issues of children and how this may have affected the outcome of the research.

Asaba: Town background (A brief overview)

Asaba is one of several urban and semi urban settlements in Nigeria that were transformed politically in 1991 into state capitals⁵. The population of the town before it's transformation into a state capital was estimated to be between fifty to sixty thousand (Asaba Development Association 1978; Osadebay 1985). However, the current population estimate stands well over half a million (Asaba on the Net 2002). The number of people living in Nigeria's towns and cities is expected to reach 100 million by 2010 (The World Bank Group 1996).

Geographically, the town occupies an estimated area of 762 square kilometres (Federal Ministry of Information 2000) and was originally made up of five quarters: Ezencei-ndo, Ugbomanta, Agu, Ajaji and Onaje. Later additions are Cable-Point and Otu-Ogwu—migrant communities of mixed ethnicity (Asaba Development Association 1978).

Water Supply in Asaba

Public water supply in Asaba has always been grossly inadequate with regard to user's needs and expectations. Residential communities suffer poor levels of service and the low-income communities have very limited access to the public water supplies. Before 1991, Asaba had two major public water schemes, private boreholes were uncommon and those not connected to the public network fetch water from either shallow wells or the adjacent river Niger.

After state creation, the major public water schemes increased to five, privately operated water supply tankers increased to over twenty and privately owned boreholes increased to over ten thousand mostly among the elite and government officials. In a situation where the policy makers and the elite are well catered for, the public water schemes that appear to supply only the urban poor has since rapidly deteriorated and many have to buy water either from water tankers or wealthier neighbours with private boreholes.

⁵ These were rural or semi-urban towns that were transformed into political state capitals 'overnight' by military decrees, as opposed to those that developed into state capitals over a period of time either in the pre or colonial era, for reasons of commerce and/or administrative convenience.

Photograph 2: Legislators quarter and women & children waiting to buy water



Legislators Quarters. Overhead Water Reservoir



Women and children waiting to buy water

The Urban Water Board is the official government body charged with the responsibility for water distribution as well as enhanced powers that included cost recovery. It arranges the supply of water derived from borehole drilling system pump stations sited at five different locations in Asaba to the taps of consumers. The supply is facilitated through comprehensive networks of conduits and with large water reservoirs. Of the five, the Ogbogonogo pump station is the most centrally located and has the largest water reservoir with two main supply patterns to Otu-Ogwu and Cable-point communities.

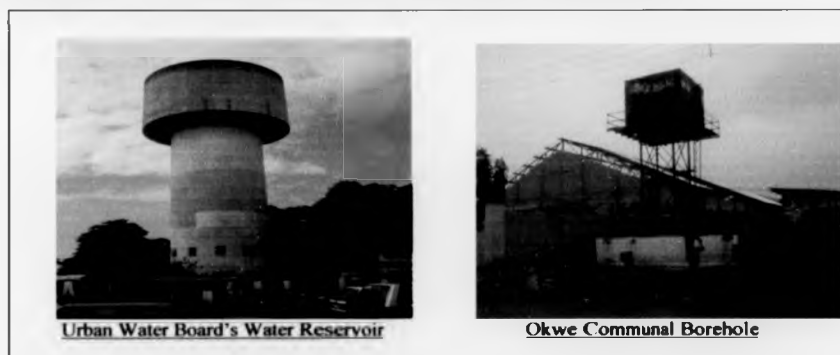
The Urban Water Board among its functions is to ensure the maintenance of old pipelines and the connection of new pipelines to houses built within its distribution network. New residential areas that were developed after state creation were however not linked to the public network. Water storage in overhead reservoir has long been discontinued and the network of pipes experiences leakages as a result of poor maintenance of the system.

The situation is further compounded by the incongruent external development of roads and streets in the town—that cause damage to the network as well as the sub standard quality of construction. The water board is rarely consulted or informed about new connections and damages to network pipelines are left for weeks unattended. When and if the board receives information of damages to the network system, cases may remain unattended for months or years depending on the area and the socio-economic status of the consumer. The water board Engineers for their part blamed the inability of the board to discharge its duty properly on poor budgetary

allocations, mechanical breakdowns and vandalism of pipes and taps by members of the communities⁶.

The acute water shortages and infrequent supplies have led to the development of various forms of informal alternatives mostly in the form of privately developed boreholes through communal or individual self-effort. These are evident in almost all areas of the town especially in the government and elite neighbourhoods⁷. An indigenous peri-urban community (Okwe community) was compelled to develop a borehole with a water storage tank through communal effort to supply water to the community. The salary of the attendant employed by the community, running and maintenance costs were met from the fees charged for water fetched from the water source⁸.

Photograph 3: Water Board's Reservoir & Okwe communal borehole project



Before the creation of Delta State, the defunct Bendel State government had procured several water tankers to supply water to low-income settlements and other designated locations in Asaba. These water tankers have since broken down and private commercial operators have taken over the supply of water—at a price—to small-scale

⁶ Interview with the board engineer (August 2002) at the Urban Water Board Asaba.

⁷ Revealed in an interview with the board engineer, conducted in August 2002 at the Urban Water Board Asaba, as well as the documentary records of the Board and the State Public Utilities Board.

⁸ Information was obtained in a private interview with the elders and community head of Okwe in April 2004.

industries, factories, road construction sites and other locations where water is in short supply.

The commercial water tankers drivers and owners of Asaba, organised themselves into a formidable association with a membership of about 27 vehicles. The average capacity of their tanks was 2000 litres, although there were vehicles with 1,500 and 2,500 litres capacities. Initially, tanker drivers were charged 100Naira for collecting water from the Urban Water Board premises located at Ogbogonogo. The tankers in turn sell 500litres to the community members for between 600Naira to 800Naira. They were later stopped from collecting water from the board premises due to persistent petitions that:

(1) The activities of the water tankers result in the reduction of pressure in the public network thereby falling short in supplying water to the communities at the end of the network, since a large amount of the reservoir water has been removed. (2) The tanker drivers buy water that was originally meant for the communities from the Urban Water Board and resell to the communities at exorbitant prices. (3) It is the urban poor who reside in the communities supplied by the network that suffer from the activities of the water tankers as the wealthy residents have private boreholes.

Following these allegations, the board management promptly discontinued the sale and supply of water to tanker drivers. Presently, the tanker drivers buy water from Akaz industries, a private water borehole location in Asaba⁹. The use of private water tanker services in Asaba therefore resulted, as with the privately owned water boreholes, from necessity as an unplanned response to the failure of the public sector, but has since fallen short of the achieving an appreciable level of competition and efficiency.

⁹ Information was obtained in a private interview with the president of Asaba Water Tankers Drivers and Owners Association **January 2005**.



Photograph 4: Private water tanker and Akaz Borehole Asaba



Water tanker



Water tankers at Akaz borehole Asaba

An unplanned but progressive response to the failure of the public sector and the 'passive' privatisation policy of the State government in the early 90s was the development and proliferation of private water packaging companies. Many of these water packaging companies started off as one-room small-scale water packaging enterprises using one or two door-to-door hawkers as their distribution outlets, but later grew into large-scale water packaging companies with one or several distribution trucks supplying several outlet depots in Asaba.

Photograph 5: Packaged water and Jemok Packaged water plant in Asaba.



Jemok Packaged drinking water



Jemok Natural Water Plant

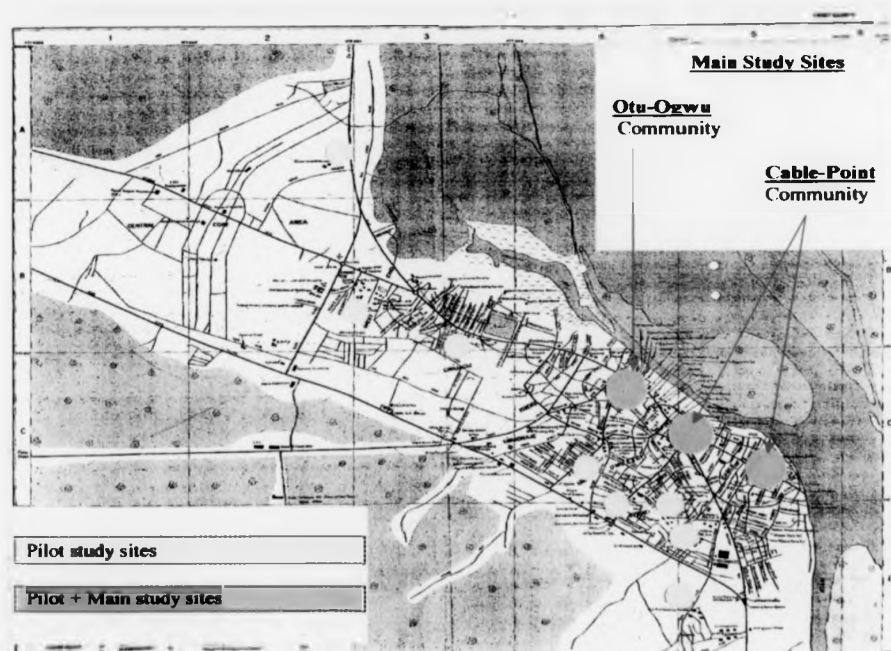
Presently, there are countless competing water-packaging companies in Asaba—Jemok water, Lily water, Chi-Chi water, Jolly water, KK table water, etc.

Other modes of water supply include manual water carriers (door-to-door water vendors—Mai-ruwas) but their operations were locality-based and serve essentially an internal clientele within the community.

The Study Setting

The study was carried out in two low-income, high density and ethnically diverse urban communities of Asaba—Cable-point (a south-eastern suburb) and Otu-Ogwu (a western suburb). However part of the data collection was extended to include some areas outside these communities. These two communities were chosen because of their distinctive water supply situations and living conditions.

Photograph 6: Map of Asaba showing study sites



The choice of Cable-Point and Otu-Ogwu communities as sites for this study was based on the state of their public water schemes. They are scarce and poorly maintained with many families resorting to self-provision—from private vendors or the nearby river Niger.

The women and children, as in most settings, bear the burden of inadequate water supply not only in terms of direct health impacts but also in terms of the impacts of their role in water collection and bearing (The World Bank Group 1996).

This makes these two communities perfect sites to study the concerns of children with regard to their roles in household's water collection and distribution. An overview of these two communities is presented as Table 1.

Table 1: An overview of Cable-Point and Otu-Ogwu communities

Characteristics	Cable point	Otu-Ogwu
Physical	Small peninsular Dense with old infrastructures Multi-storey buildings More tendency of road paving More tendency to use beaches as toilets	People settled on poor quality land prone to erosion Less storey buildings and less tendency to use the beach as toilet
Socio-cultural	Rent paying tenants, Mixed ethnicity with a dominant Hausa community Drug dealers, Sex workers Boys more prioritised. Girls less valued. Parental control is gender and age related Social structure is complex and influences water collection	House owners/Rent paying tenants Mixed ethnicity Less drug dealers Less sex workers Boys and girls valued equally Linked family backgrounds

Source: Documentary records of the Oshimili Local Government Council, Asaba

Cable-Point Community

For the early white settlers in Asaba, it was essential that they communicate with their folks in Onitsha on the other side of the River Niger, without having to cross the river repeatedly. For this reason, telephone cables were connected across the River Niger. First, the area where the cables crossed the river and thereafter the entire area later came to be known as 'cable-point'.

The Cable-Point community of Asaba is a multi-ethnic community of over 10,000 residents that settled on a little peninsular of about 150,000 by 80,000 square metres¹⁰. It is made up of dense old multi-storey buildings reminiscent of the colonial days dotted among shacks and mud houses.

Photograph 7: Different views of Cable-Point Community



Different views of Cable-Point Community

Socio-culturally, it is of mixed ethnicity, with close family ties within the different ethnic groups, accommodating drug dealers/users, and commercial sex workers. Boys are more valued than girls and parental control is gender related especially amongst the Hausa-Fulani ethnic group (Asaba Development Association 1978; Osadebay 1985). Access was difficult and the area is notorious and avoided by other residents of Asaba.

In 1965, the Europeans that came to settle in the area constructed a public water network for Cable-point residents. The network supplied water to 12 centralised sites where women and children go to collect water for their households. With the passing

¹⁰ Source: Documentary records of the Oshimili Local Government Council.

of time and increasing population in the community, the supply of water became grossly inadequate. The scramble for water became so tedious that majority turned back to the river for their water supply and only go to these public taps to collect household's drinking water (Asaba Development Association 1978; Osadebay 1985). At the time of this study, there was no functional public tap in Cable Point and no trace that such ever existed in the community. Presently, Cable-Point residents depend on water from the privately owned boreholes, Mai-ruwas (water vendors), the River Niger and one major packaged drinking water depot. Residents also collect and use rainwater to supplement household's supplies during the raining seasons.

Otu-Ogwu Community

Otu-Ogwu community of Asaba is made up of people that settled on land that is less good, less planned, haphazard and prone to erosion. The community of over 5,000 residents nestle on a landscape of about 800,000 by 50,000 metres north of the River Niger.³ Historically, the area was set aside by the indigenes of Asaba as an evil forest where those who committed grievous offences or sacrilege were banished. The earliest settlers of Otu-Ogwu were immigrants who for one reason or the other were either banished or fleeing from their respective communities (Asaba Development Association 1978; Osadebay 1985). Today, Otu-Ogwu community is made up of both indigenes and non-indigenes of Asaba.

Photograph 8: Different views of Otu-Ogwu Community



Different views of Otu-Ogwu Community

Socio-culturally, it is of mixed ethnicity but when compared to the Cable-Point community, it has less drug dealers, less sex workers and loose family ties. Boys and girls are almost equally valued and parental control is not gender related (Asaba Development Association 1978; Osadebay 1985).

In 1965 the then Mid-Western government constructed a water reservoir in the vicinity of Otu-Ogwu and installed eight public taps within the community. The water supplied by these public taps was free of charge and the supply continued until the Nigerian civil war broke out in 1967. Thereafter the services became intermittent and unreliable, even after the war ended in 1970¹¹.

At the time of this study, one public water scheme was located in Otu-Ogwu community. There were twenty-eight privately owned water boreholes and five privately owned water vending boreholes and a number of private packaged drinking depots. Household water sources include yard taps connected to the public network; water purchased from houses with yard taps or private boreholes, the nearby river Niger and packaged drinking water purchased from local depots or hawkers.

Like Cable-Point community, Otu-Ogwu residents also collect and use rainwater to supplement household's supplies during the rainy seasons. Unlike Cable-Point, water vendors do not operate in this community. A summary of the different water sources in the two settlements is presented in Table 2.

Table 2: Summary of household water sources

Cable-Point community	Otu-Ogwu community
No public water supply	Single public water scheme.
No public tap	No public tap
No yard tap	Yard taps
Private water vending locations	Private water vending locations
Packaged water depots	Packaged water depots
Mai-Ruwas (door-to-door water vendors)	No door-to-door water vendor
River Niger	River Niger

¹¹ Obtained from the documentary records of the Oshimili Local Government Council

**The Pilot study on household's water provision
(Pilot Study 2)**

To further refine the data from the first pilot that was directed at public utilities (see appendix 1), I conducted another pilot study between December 2003 and January 2004 (Pilot Study 2), this time involving children between ages 5-12yrs and focusing specifically on household water provision. The decision to conduct a second pilot was borne out of the fact that the first pilot involved children between 13-17yrs and was directed at urban public utilities provision.

The general aims and objectives of the second pilot study were: (1) Elicit authentic accounts of children's perception of their participation in household's water. (2) To test the suitability of the focus group method when used with younger children. I organised two focus group sessions in two different settings. One session took place in a school setting and the participants were pupils and students drawn from two neighbouring schools.

Drawing from the experience gained during the first pilot study and based on the categories of children identified in that study, a second focus group session was conducted outside the school setting, involving a combination of school pupils, home based and in-the-street children. In addition, a field observation followed by an opportunistic group interview and key informant's interviews were also carried out in order to explore the issues in depth.

The Focus Group Sessions:

Appointments were scheduled with the proprietress and headmistress of Ogeah International School and the Principal of Federal College of Education Staff School in December 2003 for a focus group discussion with the pupils and students of both schools. The group discussion which was conducted in English and involving eight (8) participants—between the ages of 9 and 12yrs—centred on the role of children in household's water provision. The session was audio taped after obtaining the consent of the participants, transcribed, summarised and subsequently analysed.

To recruit children for the 'combined' focus group session, I made contact with a popular resident of Otu-Ogwu (She later became one of my research assistants after

our meeting) who met with the parents of the children in the area (see appendixes 12 and 13). Verbal consent was also obtained directly from the participants.

Although the recruitment of children into the study was done in December 2003, the group discussion on household's water provision—conducted in a mixture of English, pigeon English and Ibo—did not however take place until January 2004. Eight participants between the ages of 6 and 11 yrs were involved in the group discussion.

The session was audio taped, transcribed, summarised and analysed after obtaining the consent of the participants (see appendix 11). The preliminary results from the pilot study proved very useful in the design and conduct of the main study. Appendix 5a presents the focus group guide and appendix 5b, the stages in the group session.

Summaries of the two focus group sessions are presented as appendixes 6, 7 and 8, while the detailed analysis of the pilot data is presented along with the data from the main study.

Fieldwork on the Main Study

Fieldwork, extending over a period of fourteen months was undertaken in Asaba, the capital of Delta State, Nigeria. It started late in March 2004 and ended in mid June 2005. Although the major part of the study was undertaken in two low-income communities, the study was however extended to include the views of a number of children outside the two communities.

One hundred and twenty seven children participated in the main study. From within the two study communities, eighty children were recruited for individual interviews, eight children for group discussion, six for 'one day' field observation and one for a guided tour. The remaining thirty-two children were recruited from outside the study communities,

The Research Team

A research team of three—two research assistants, one from each community and myself as the main researcher—over a period of fourteen months collected data on the social organisation and distribution of water in the two study communities. All team members speak the local languages of the communities (Ibo, Yoruba, Hausa and Pigeon English). My research assistants had participated in the pilot studies thus bringing the experience gained from conducting the pilots into the main study.

As the main researcher I carried different personalities—doctor, researcher, man and non-community member—into the study. Some residents, I was later told, had met with me while I was working at the Asaba General Hospital. They are now surprised to see me working as a researcher in their community. My first research assistant, a female school teacher and resident of Otu-Ogwu¹ was born and raised in the community. My second research assistant was a young man from Cable-Point community. He was familiar with both the practices and geography of his community.

After an agreement was reached on their monthly salaries and armed with my research proposal, I spent an additional three weeks discussing and strategizing on how to carry out the data collection. My preparations covered how to document field observations, the art of interviewing—using other team members—to improve on interviewing skills. I also used this period to process and obtain the approval of the Delta State Ministry of Education to conduct research within schools in Asaba.

Gaining access into the field

Because of the geographical locations of Otu-Ogwu and Cable-Point communities and the 'reputation' of these communities particularly Cable-Point, most of us who live in other parts of the town only visit as far as the markets except when on official government assignments. Having lived and worked for a number of years in Asaba, I felt that I 'knew' the town as much as any other resident and that I could 'feel at home' in any part of the town.

My familiarisation visits to the communities prior to the pilot studies quickly disabused my mind of these assumptions. Not only was I being stared at, most of the residents including the children stopped whatever they were doing to follow my progress through their communities. It then dawned on me that these are 'tight' communities where most of the residents know each other, almost, if not on first name basis. Besides, my appearance and dressing made me 'stick-out' immediately I set my foot in the communities.

I therefore resolved to use my resident research assistants to conduct the observation of the water sources in the communities. Their presence at the water sources attracted less attention when compared to the effects the presence of an unknown observer would have had on the observed. While this approach might be useful, it however introduces the problem of data reliability as this is influenced by the skills of the observers. To address this issue, I conducted an intensive three weeks training on taking down field notes as well as the use of the diary technique¹²—supplemented with a checklist that was meant to capture the activities—for documenting field observations.

As members of both communities, I was concerned that my research assistants might be influenced by their past experiences which invariably may affect the data collected. Johnson and Turner had warned of the possibility of an observer 'going native'¹³ (Johnson and Turner 2003). To overcome this, I stressed the need for them to accurately take down and describe the actual events as they were taking place and not selectively document what they consider as the typical situation in their communities. To support this, I visited the sites prior to data collection, taking field

¹² Method used to document the detailed pattern of usage of the selected water sources.

¹³ That is, over identifying with the group being studied.

notes and compared these with those from my research assistants at the end of each day.

Based on the knowledge of the ethnic and cultural practices of the Hausa-Fulani residents of Cable-Point that restricts women and girls from coming in contact with non relative males—apparent during the informal observations and trust building contacts—I decided to use the only female member of our team to conduct the interviews in Cable community. Being a resident of Otu-Ogwu community meant that she had to assist me, whenever she can, with the interviews in her community. This arrangement was quite tasking and meant that more time, than I earlier anticipated, was required and spent on the interviews.

Conceptual and Methodological framework

There are divergent views on methodological approach in terms of the units of analysis and the complexity of approaches to be employed when working with children (Pelto and Pelto 1978). The study of rights also adds its complexity as it cuts across disciplines. As Paul Farmer suggests, 'the social fields in which human rights are violated are complex beyond the understanding of any one view or discipline' (Farmer 2004).

At a theoretical level, the study starts from the premise that childhood is a social construction, while situating the data within the human rights framework. Specifically the study applies the 'new childhood methods'¹⁴ with the human rights interest theory to explore, in terms of their rights and responsibilities, how children understand the health and social impacts of their role in urban household's water supply (Franklin and Franklin 1990; James and Prout 1997; Fagan 2005).

Poor water provision violates children's rights—not only to survival and health, but also to a decent standard of living' (UNICEF 1989; Bartlett 2003). Human Rights

¹⁴ The 'new childhood studies': a new paradigm that developed 'from the largely social constructionist premises: that the child is not a natural category and that what a child is and how childhood is lived is structured by adult's norms, aims and culture (James and Prout 1997).

therefore offer a promising framework to address many of the issues of children in water provision.

On the societal level, 'the human right to water entitles everyone to sufficient; affordable; physically accessible; safe and acceptable water for personal and domestic uses'—thus providing 'a toll' to hold government accountable for ensuring equitable access (United Nations Economic and Social Council 2002).

At the State level, it demands that State parties ensure: Physical access to water facilities or services that provide sufficient, safe and regular water with sufficient water outlets at a reasonable distance from the household to avoid prohibitive waiting times¹⁵. This will then ensure that children are not prevented from enjoying their human rights due to the lack of adequate water in households or through the burden of collecting water.¹⁶

The European concept of childhood (essentially those of white, urban middle class) appeared to have formed the foundations for the development of children's 'universal' 'basic needs' (Scheper-Hughes and Sargent 1998) based on which the Convention on the Rights of the Child (CRC) adopted by the United Nations in 1989 (UNICEF 1989) was designed.

The Convention on the Rights of Children, by setting the standard of children's well-being within the rights framework, implies that 'right' is a far more powerful concept than 'need'. The 'Convention' is therefore seen as important advance on the earlier concepts of 'basic needs' because it is not just a general statement of good intent, but an instrument legally binding those states that ratify it (Boyden 1997).

Bartlett however noted that even among countries that have signed and adopted the Convention on the Rights of the Child, 'there can be a certain hesitation about children's right—a sense that this perspective may be a threat to customary ways of doing things, an unwelcome imposition of standards' (Bartlett 2003).

In addition, this 'universal' view of childhood when exported to the Third World, as James and Prout put it, 'has had the effect of rendering deviant or criminal much of working class life and many of children's everyday activities (James and Prout 1997).

¹⁵ (Core obligations 37c)

¹⁶ (Section II, 16b).

It was these reasons that informed my decision to adopt 'the new childhood methods'—that starts 'from the largely social constructionist premises; that the child is not a natural category and that what a child is and how childhood is lived is structured by adult's norms, aims and culture' (James and Prout 1997).

This paradigm presents a number of advantages for this study. Firstly, the institution of childhood provides an interpretive frame for exploring the lives of children as it is the biological immaturity¹⁷ rather than childhood that is taken as universal.

Secondly, the fact that childhood as a variable of social analysis, is linked to other variables such as class, gender or ethnicity rather than the current trend towards a single 'world' view of childhood (James and Prout 1997).

Thirdly, this paradigm recognises a variety of childhoods, as Boyden put it, 'that are worthy of study in their own right, and not just in respect to their social construction by adults' (Boyden 1997). From this perspective, children are seen as being actively involved in the construction of their own social lives and that of the society in which they live.

Because of the complex nature of the study theme and the need to access children within different age groups, I have used a qualitative approach for this study while situating the sociological data collected within the human rights framework. According to Cantwell, the human right framework is 'an unprecedented framework for presenting children's global needs—since it is in response to needs that rights are formulated' [Cantwell 1989; cited in (Boyden 1997)].

I have also drawn on the social constructionist perspective—that childhood is not a single simple universal phenomenon but appears to vary cross-culturally (James and Prout 1997)—to explore, in terms of their rights and responsibilities, how children understand the health and social impacts of their role in the household's water supply.

A qualitative approach that 'captures' their voices and opinion best suited my research aims. 'Having a voice' according to Bartlett, encompasses giving children a 'chance to simply describe the realities of their own lives..' (Bartlett 2002a). I adopted methods such as observation, natural interview and focus group discussion—

¹⁷ Biological immaturity refers to the physiological stage of development of a child.

since these 'allows children a more direct voice in the production of sociological data than is usually possible through experimental or survey styles of research' (James and Prout 1997). Each research method provided different sets of data permitting the triangulation and exploration of validity between reported and observed actions (Denzin 1989).

The fieldwork-based qualitative research encourages a focus on the ongoing roles which children play and the meanings they attach to their lives (James and Prout 1997). Thus, the field interviews and focus group sessions enabled me to address other key research aim: To describe the children's perspectives on their experiences in urban household's water provision and to analyse the key conceptual frameworks within which water is understood by children.

The limitations of these methods are discussed in detail elsewhere in this document. Finally, a number of studies have successfully used qualitative approach to study children in their natural settings (Johnson, Hill et al. 1994; Morrow 1994; WaterAid 2000b; Griesel, Swart-Kruger et al. 2002; UNICEF 2002b; Clark 2004).

Research Methods to Meet Research Aims

To achieve the aims and objectives of the study, a three-stage approach was needed. 'Stage 1' focused on the observed actions using observational methods, while 'Stage 2' explored reported experiences of children using individual interviews. Stage 3 further explored children's understanding of their rights and responsibilities using child-led tour and group discussion.

A summary of the study objectives and the methods that were used to meet these objectives are presented in Table 3 while a flow diagram showing the different stages of the field data collection is presented as Figure 2.

Table 3: A summary of the study objectives and methods

STAGE	STUDY OBJECTIVE	METHOD
STAGE 1	To describe children's involvement in the social organisation of household water supply.	Observation
STAGE 2	To explore reported social and health related impacts of children's involvement in household's water supply.	<u>Interview</u> Batch 1; Batch 2; Batch 3
STAGE 3	To explore children's understanding of their rights and responsibilities vis-à-vis water collection, distribution and use.	Guided tour Focus group discussion

Figure 2: Flow Diagram of Field Data Collection

Pilot Study 1

Focus Group: Public Utilities Provision
[School Context 13-17yrs]
(Dec 2001-Jan 2002)

Pilot study 2

Focus Group: Water Provision.
[School Context 7-12yrs]
Dec 2003

Focus Group: Water provision
[Community Context 6-13yrs]
Jan 2004

March 2004

Main Study

Stage 1

Phase 1
Informal Observation &
Trust Building Contacts

Phase 2a
Formal Observations of
Water Sources

Phase 2b
A 'day in the life of a
Child'

Stage 2

Individual Interviews:
Batch 1

Individual Interviews:
Batch 2

Individual Interviews
Batch 3

Stage 3

June 2005

Guided-Tour

Focus Group on Water Provision
[School Context-14 to 17yrs]

Entrée into the Field

Following a series of trust-building contacts with community members, informal observations, visits to community heads and schools located within the communities (March to May 2004), data collection began in June 2004 and was completed in June 2005. The main periods of data collection were as follows: Raining Season: June 2004 – September 2004; Dry Season: December 2004 – February 2005; April 2005 – June 2005.

Sampling Strategy

Having decided on the methods that would be used to achieve the study objectives, I now direct my attention to the 'research population' that will supply the needed data. In this study, the research population applies to all the children that are involved in household's water collection and distribution in Asaba, specifically, those children from the two disadvantaged communities.

It was not possible to collect data from every child in the two communities because of the large population and it was practically impossible for me to identify all those who are actively involved in household's water collection by simply visiting each house in turn. I decided that taking a sample of the population was the only practical approach.

In quantitative research, the intention is to take a sample that is representative of the research population so as to permit generalisation of the findings of an enquiry (Beaglehole, Bonita et al. 1993; Kemper, Stringfield et al. 2003; Buckingham and Saunders 2004). In qualitative research, sampling is intended to permit a detailed understanding rather than empirical generalisation (Denzin and Lincoln 2000; Patton 2002).

In this study, four types of sampling techniques were employed; theoretical, purposive, fixed-time-interval and time sampling techniques¹⁸. 'Time sampling' was included to ensure that data collection covered different seasons—raining and dry seasons (Brewer 2000).

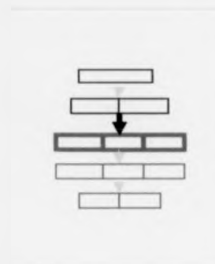
¹⁸ **Theoretical sampling:** Data collection process that continues until the researcher is assured that further data collection will yield no new information.

Purposive sampling: Involves the use of the researcher's judgment as to the typicality or interest of the sample for the study.

Fixed-time-interval sampling: Sampling in which the researcher treats units of time as the units of observation.

STAGE 1—OBSERVATION

As stated elsewhere, the purpose of 'Stage 1' of the study was to describe children's involvement in the social organisation of household water supply. This was approached in two phases; phase 1 involved an initial informal observation and trust-building contact. In the words of Driskell, 'informal observations provide invaluable information about specific events or activities in the local' (Driskell 2002). In phase 2, the formal observation was conducted based on the information acquired in phase 1.



Phase 1: Informal Observations and Trust-building Contacts

For the members of the research team, the study began—with the visit of my supervisor Dr Carolyn Stephens—by 'hanging out' in the two communities noting 'where children are present and what they are doing' (Chawla 2002a). By talking with some community members in the process, we used the opportunity to re-introduce the study.

It was these general familiarity visits to understand how these communities work and visits to the community heads that formed the basis for determining where more formal observations and recruitment of volunteers for the subsequent individual interviews were carried out. These informal observations and trust-building contacts also brought to light some unanticipated field problems that informed decisions on how to approach data collection in certain areas of the communities. Details of these are presented elsewhere in this chapter.

Since the first aim of the study was to describe concrete experiences of water collection and children's perspective on their experiences, I decided to locate and observe selected water points (as the study samples of water sources) from the two study communities. First, I visited and documented all the different water sources within the two communities. By grouping similar water sources together, I ended up with four major groups for the two communities—yard tap, borehole, packaged water and the river. This approach was intended to maximise comparison between the four different groups of water sources.

Using a purposive sampling technique—first in Otu-Ogwu—I selected one sample from each of the four groups and repeated the same procedure in Cable-Point community. Purposive sampling involves the use of the researcher's judgment as to the typicality or interest of the sample for the study. Based on this, a sample is then built up to satisfy the researcher's specific needs in the project (Robson 1997). The choice of a water source for the study was based on type and frequency of usage by community members. Those sources with the highest frequency of usage within each group were selected for the study. It was however noted that no functioning yard tap was present in the Cable-Point community.

I identified three (3) sites in Cable Point and four (4) in Otu-Ogwu communities during the course of the informal observations and trust building contacts for: (1) Formal observation of selected water sources; (2). Recruitment of volunteers across age ranges and gender for one day field observations (A working day in the life of a child) and child-led tours of water collection and distribution and (3); Recruitment of volunteers for the individual interviews. Table 4 shows the types and locations of selected water sources within the two communities.

Table 4: Selected community water points and their locations

Water Point	Cable-Point	Otu-Ogwu
YARD TAP	NONE	PAPA JOHNSON'S
WATER VENDING BOREHOLE	JARRET STREET BOREHOLE	NECAB
PACKAGED WATER DEPOT	DO-GOOD	BUTEBE-BUTEBE
RIVER LOCATION	MARINE/CABLE RIVER BANKS	OTU-OGWU RIVER BANK

Phase 2: Formal Observation

Having dealt with sites and selection of water sources in phase 1, my thoughts now turned to conducting the formal observation. Since the actions and behaviour of children at the water sources forms a central aspect of this stage of the study, in the words of Robson, the 'natural and obvious technique is to watch what they do, to record this in some way and then to describe, analyse and interpret' that which I have observed (Robson 1997). Observation method was considered suitable because it allows (a) the observations of actual tasks; (b) identifies those who are involved and (c), how these tasks are carried out. A major advantage of this technique is its directness. You do not ask people about their views, feelings or attitudes; you watch what they do and listen to what they say, making it, according to Robson, an appropriate technique for getting at 'real life' in the 'real world' (Robson 1997).

This however does not imply that observation is an easy trouble-free option. How do I know what their behaviour and actions at the water sources would have been like if it hadn't been observed? There are concerns about the extent to which an observer affects a situation under observation. At one extreme, it has been suggested that this can be minimised if the observed are unaware of the observer's presence. However, this raises ethical concerns about consent particularly with children. At the other extreme, are the views that by getting accustomed to the presence of the observer, they may carry on as if s/he were not there (Johnson and Turner 2003). Whether one takes a very detached or very involved role as an observer, there are related methodological and ethical problems.

Although I hesitate to document this, I believe it is important to also mention how my supervisor's field visit may have contributed to my 're-admittance' into the study communities. Prior to her arrival, as I mentioned earlier, I was treated as an outsider and I needed the known faces of my research assistants to facilitate my interactions with community members, at least, trust wise. Dr. Carolyn Stephen's (a white British woman) arrival took all attention away from me as she now became the focus of the community, particularly so with the children. It was now easy for the community members to see me as 'belonging' because of our contrasting racial backgrounds and the fact that I speak the local languages and dress like they do. On one hand, the previous 'insider-outsider' problem based on perceived differences in socio-economic

status between me and the community residents became minimised if not totally overlooked when presented with a different 'insider-outsider' situation based on race. I am not proud to say that this could have contributed to the trust and bond I later developed with the children. On the other hand, expectations were high about the outcome of her visit, having travelled from such a far distance to meet with them.

My next hurdle was the decision on the time-period strategy for the observation. Do I conduct a continuous and on-going observation or do I adopt a fixed-interval sampling in which one treats units of time (e.g. 30-minute segments) as the unit of observation (Patton 2002). Johnson and Sackett argue that, 'the advantages of fixed-interval sampling over continuous monitoring are that fieldworkers experience less fatigue and can collect more information at each sampling observation routine' (Johnson and Sackett 1998). Experiences from the informal observations reveal that the activities of children at the various water sources are concentrated in the morning before school and in the evenings after school hours. This informed my decision to adopt the fixed-interval sampling and each selected water point was observed in one hour segments first in the morning and later in the evening over a period of one week.

Having settled for a fixed-interval observational technique, the formal observation of water points within the two communities was approached in two ways. The first—using a diary technique—was focused primarily on the frequency of usage and activities at the water sources and a second—that focused on the children identified through the first approach—using 'a day in the life of a child' observation method.

Phase 2a; The 'Diary technique'

The diary technique was used to document the detailed pattern of usage of the selected water sources and to isolate the individuals involved (Bhattacharya 1988). A total of seven (7) field visits (3 in Cable-Point and 4 in Otu-Ogwu) were undertaken. Each field visit lasted for one week and field notes of activities were recorded. In using this technique, information such as the frequency of usage, those involved, what they do, what types of utensils are used etc, were documented in one hour segments mornings and the evenings at each water point for one week. I adopted a sort of time shuffling technique for the observation of the water points. If for example, an observer stays between 6am to 7am in the morning of the first day. On the second day, observation will take place between 7am to 8am. That way, the peak

period of activity, between 6am and 8am—revealed during the informal observation—was totally covered. The same technique was repeated for the evening sessions. With that approach, I was able to document the differences in community member's activity pattern at the selected water points.

Phase 2b; 'A working day in the life of a Child'

In order to concentrate on children with the most direct experience of water collection, I decided to recruit children that were seen fetching water from the selected water sources in the two communities. Based on gender and frequency of a child's usage of the selected sites; six children (8-13 years) were recruited by adopting the purposive sampling technique. Each child was then observed for one day. Each of my two research assistants and I observed two children each.

After meeting the parents of the children and obtaining their consent, I arranged and carried out the observations starting from the time they woke up in the morning to the time they went to bed at night on the appointed days. The families of the children were very cooperative after I had explained the objectives of the study to them. During the observational period, they were initially very conscious of our presence in their homes and passing anxious glances towards the children that were being observed. The situation later improved as they began to concentrate on their own tasks.

Beginning with the visits to the children's homes on the appointed days, my research assistants and I observed the children and documented their activities. I had to join one family in their morning devotion so that my presence would not become a source of distraction. Using the diary technique, I documented the activities of the child through out the day focusing more on the water collection aspects, while asking questions about his duties and responsibilities. After escorting him to his school gate, I returned at the close of school to join him on his way home. I asked questions and chatted with him all the way home while taking notes of his actions both in the public and private domains. The observation ended when he went to bed. I thanked his parents and left promising to return someday with the results of the study.

STAGE 2.—Interview

Having observed and identified the activities of children at the various water sources in the communities, I wanted to explore children's perspectives of their experiences. One possible way of doing this, is to listen to their conversations while observing their activities at the water sources during the Stage 1 of this study.



Since it is very unlikely that water collection will be a subject of frequent detailed discussion at the sources, listening to their natural conversations may fail to meet the objective of the study. It also raises practical and ethical problems of listening to and recording their conversation with their consent—raising methodical problems of the effects of the observer on the observed or without their consent—raising ethical problems of eavesdropping.

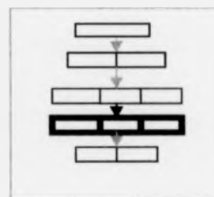
What informed my decision to conduct interviews is not whether or not observational data are more desirable than self-reported data, but the 'fact that I cannot observe everything' (Patton 2002). I can neither observe the children's feelings, thoughts and intentions nor can I observe situations that precede my presence as an observer. With these in mind, I felt it was both necessary and justified to create a specific context in which to ask children about their experiences of water collection.

Interviews have been described as 'a socially constructed encounter and the data produced are as much a product of the social relations characterizing the process as the research method used' (Scott 1999). What sort of interview would be suitable for children? Should I conduct individual interviews or hold group discussions? A number of previous studies on children have used both methods (Johnson, Hill et al. 1994; Green 1995; WaterAid 2000b; Morrow 2001; Griesel, Swart-Kruger et al. 2002; UNICEF 2002b; Clark 2004). According to Cannel and Kahn, interviews—individual or group—are conversations that are 'initiated by the interviewer for the specific purpose of obtaining research-relevant information..' (Cohen and Manion, 1989, p. 307).

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(Robson 1993). Morgan however noted that focus groups are useful as they provide a forum that encourages participants to share their thoughts and experiences about a particular issue that is relevant to them all (Morgan 1998). After a careful consideration of the potential of each approach towards attaining my research aims, I decided to adopt individual interview for Stage 2 of the study and group discussion as 'a Supplementary source of data' (Morgan 1997; Morgan 1998) in Stage 3 for the following reasons. Firstly, I wanted to explore children's perspectives of their experiences of water collection and 'one good way of finding out things about people is to ask them directly' (Robson 1997).

Secondly, children usually visit the community water sources singly and only on very few occasions do they arrive in twos and threes. It was much easier to recruit them for individual interviews at the water sources than for group discussions which will require much planning and coordination to bring all the participants together. Thirdly, group discussions can provide an opportunity for children to consider and respond to each others views on water collection and bearing. Important as this may be to the study, I felt that the individual experiences should take precedence at this stage of study. I intended using focus group discussions as a follow-up to individual interviews in order to explore issues from the observations and individual interviews that only become apparent during the later stages of the study (Morgan 1998).

Having decided on individual interviews for this stage of the study, the next question is how to format the interview questions. I wanted the interviews to be as lightly structured as possible to give the children the opportunity to discuss experiences or issues that they regarded as important. Some past studies lend support to this view by providing evidence that less structured methods are more appropriate for younger children (Opie and Opie 1959; Mayall 2000). In this regard I carefully considered two proposals concerning interview data. On one hand, interview data can be treated as 'facts' about the world. The primary issue in this approach is to generate data which are 'valid,' reliable and independent of the research setting. On the other hand, interviewees may be viewed as experiencing subjects and the primary issue is to generate data that give an insight into people's experiences.

The latter approach was adopted and applied, as Silverman suggests, through the use of '...semi-structured, open-ended interviews usually based on prior observation'

(Silverman 1997). This style of interview is used 'in an attempt to understand the complex behaviour of members of society without imposing any priori categorisation that may limit the field of inquiry' (Fontana and Frey 1994). Based on this, I drew up a very flexible schedule using the interview guide approach to provide some form of structure for the interview.

Robson refers to it as a 'semi-structured interview—where the interviewer has worked out a set of questions in advance, but is free to modify their order based upon her perception of what seems most appropriate in the context of the 'conversation', can change the way they are worded, give explanations, leave out particular questions which seem inappropriate with a particular interviewee or include additional ones' (Robson 1997). Since my intention is to document the collective views of children as a group,¹⁹ consistent interview findings across respondents becomes less of an issue (Patton 2002).

The interviews were conducted in several languages—English, Pigeon English, Ibo, Yoruba and Hausa—and audio-recorded in the original language that the interview was conducted. All interviews were transcribed by hand. That way, I was able to listen to questions delivered in local languages and to compare them with the English version of the question listed in the interview guide. By acting as a form of central language processing centre, I was able to discuss issues concerning meanings and translations with my research assistants.

With a detailed consideration of the aims of the study—to document children's perspectives of their experiences of water collection—and the relevant methodological and practical issues of interviewing all the children in the two communities, I decided to concentrate on and recruit children with the most direct experiences of water collection. Consequently, children who are not directly involved in water collection were thus excluded. The recruitment of participants was done during the Stage 1 of the study though the actual interviews were conducted much later in Stage 2. Although a total of 50 interviews were initially proposed, data collection continued until conceptual saturation was believed to have been reached after 112 interviews. Conceptual saturation was considered to be reached when conducting further interviews yielded no new information.

¹⁹ In which each participant is understood as a unique informant with a unique perspective

With the general approach I adopted—that of recruiting children that were seen engaged in water collection at the selected sites—it became apparent as data collection progressed that children between 15-17yrs have been excluded because very few of them visited the selected water sources during the study period. However, I thought it would be interesting to include their views. My hypothesis was that they were probably involved in water collection when they were much younger and their views might prove useful with regard to why they stopped featuring at the water sources.

Since going from house to house to locate and recruit the 15-17yrs old children into the study might prove difficult and time consuming, I decided to visit and recruit them from schools within the two study communities. While on 15-17yrs old children's school recruitment visits, I seized the opportunity to include the views of other children (5-17yrs) that reside outside the two study communities as their views on water collection might permit interesting comparisons with those from the study communities.

Conducting the Interviews

Practicalities: Using the strategies detailed above I set about arranging and conducting the interviews. All interviews require a careful preparation that takes time; arrangements to visit the water sources; securing necessary permissions; confirming arrangements; rescheduling appointments to cover absences. Most of the interviews were arranged on one-on-one basis with the participants and after their consent had been obtained, I visited their parents or guardians to obtain their consent as well.

Generally, I arranged to conduct the interviews at a pre-arranged time and place with the consent of the potential interviewee. This however was not always the case as some children wished to be interviewed right there at the water source. Although this was obviously not ideal as interviewing is difficult (Mason 1996), I adopted this approach because it meant that the participants have overturned the power-balance by dictating the timing and direction of the study.

Robinson and Kellett defined power as 'the ability of individuals or groups to make their own concerns count, even when others resist' (Robinson and Kellett 2004). I wanted to create an atmosphere where the children will be free to express themselves without the usual African adult-child cultural restrictions (Ogbuagu 1994).

Sometimes, I conducted two or three interviews at a time especially when friends of participants wanted to be part of the study.

While most of the interviews were conducted using this approach, it added an additional ethical complexity. If a child chooses to be interviewed immediately, should I, who continually proclaim that they are free to participate or leave the study at any point of their choosing, refuse to interview them and set the appointment for a later date? How do I explain their rights to express themselves if I had already made up our minds not to act on them?

The guidelines on research ethics states that the consent of parents or guardians as well as that of the participants must be obtained for minors under 18yrs. Alderson suggest that the decision whether to work with the consent of the child alone or to seek that of the parents or guardian will depend on the child's competence which in turn depends on 'each child's own experience and confidence and the skill with which the researchers talk with children and help them to make un-pressured informed decisions' (Alderson 2004).

The compromise I adopted was to seek the potential interviewee's permission to obtain their parents or guardian's consent while promising to conduct the interview before the completion of the water collection task. This was time-consuming, as I had to locate their homes and obtain the necessary consents.

Some parents or guardians were not available at that point in time and I had to rely on my judgment based on the age and willingness of the potential interviewee whether to conduct the interview or reschedule. Others preferred to have an appointment made and the interview conducted in their homes. These ethical issues are discussed in detail later on in this chapter.

In terms of location, I interviewed 48 children at the water sources, 40 in their homes, and 24 on school premises through which I made contact with them. Also included was the special case of a girl who saw us at her school during one of our school visits and asked to be interviewed in the school after she had been previously interviewed at a water source in her community.

Finally, the interviews were conducted in the language of the interviewees choosing to make them free to express themselves however they wished. This was an added advantage as no interpreter was required.

Taking a retrospective look at the fieldwork, I can now understand the children's apparent enthusiasm to participate in the study. The invitation to take part in an interview was perceived by children as an opportunity to publicly express their views. This sort of public recognition of children's views was novel and rare in these essentially adult centred communities.

The interview process

The interviews began with a period of 'warm-up' easy non-threatening questions at the beginning to settle down the interviewer and the interviewee. This was followed by the main body of the interview covering the key issues. Then a period of 'cool off' usually straightforward questions at the end to defuse tension that might have built up and then the closure: thank you and goodbye (Robson 1997).

In practice however, the schedule served three purposes. Firstly, it provided each participant with a framework within which to operate. I would have preferred the interview to be participant-led but this could prove to be quite daunting for children. Our experience showed that most times the children needed encouraging opening questions or remarks.

Secondly, the semi-structured style—'where the interviewer has worked out a set of questions in advance, but is free to modify their order based upon her perception of what seems most appropriate in the context of the 'conversation'—means that the interview schedule can be used by several interviewers without much problem as to the order or wording of questions (Robson 1997).

Thirdly, the interview schedule gave me the basis for comparisons when working on the set of interviews I conducted and those of my research assistants. Thus providing the basis for further discussions and possible change of strategy with regard to data collection in areas where I believe improvements are needed. The interview guide that was used for this study is presented as appendix 9.

Using Prompts and Photographs:

A probe is a device to get the interviewee to expand on a response when you intuit that she or he has more to give. There are obvious tactics such as asking 'anything more?'; 'Is there anything more you will like to tell me?' Other methods include the use of 'mmhmm... I found the use of probes and photographs taken on sites particularly useful while interviewing children. On many occasions the probes and photographs launched them into narrative accounts of either their activities or experiences.

Recording and Transcribing:

Before each interview I sought and obtained the interviewee's consent to audio tape-record the session after explaining the objective of the record taking. They were also assured of their anonymity. This method proved to be an advantage over relying on only the notes taken during and at the end of each interview session.

Since the interviews were conducted in several languages, there was the need to repetitively rewind, listen again and again, to certain words and their contextual usage in the interview language, in order to be precise about what the interviewee is trying to communicate. This way, I was able to compare these across languages for transcription. There were three frustrating occasions when the tapes failed to record the interviews fully and I had to rely on notes written up immediately after the interview.

After recording the interviews, tapes had to be transcribed in full and this was for me one of the most time-consuming aspects of the study. Not being highly skilled in transcription and having to transcribe all the interviews by myself, a thirty minutes interview takes me about five hours to transcribe fully especially when I had to translate local languages to English. Those conducted in English were transcribed verbatim.

Transcribing the interviews however provided me with the opportunity to listen to and identify areas for further enquiries. In addition, the 'mini' data analysis that takes place in my head while listening to these tapes was quickly jotted down in my note book and these proved very useful at the latter stages of the analysis. A number of emergent issues such as 'source of power supply'; 'family support' and 'responsibility towards family/elders in the community' were identified during the

course of these 'mini' data analysis sessions. These emergent issues that were not originally listed in the interview guide were fed into the remaining first batch interviews and the subsequent batches 2 and 3 interviews for further discussion.

The inclusion of these new set of issues required some form of modification to the interview guide. I felt consistent interview findings across respondents was not much of an issue since my intention, as I mentioned elsewhere, was to collect the holistic 'worldview' of a group of children where each participant is understood as a unique informant with a unique perspective (Patton 2002). How this might have influenced the data collected is discussed in detail under the limitations of the study. Emergent issues were further explored during the group discussion.

STAGE 3—Guided Tour and Focus group discussion

Some have described tours that are guided by young people as one of the most valuable methods of understanding their perspectives on their local environment. It involves visiting local places that are important to children in the company of one or a group of



them. According to Driskell, 'viewing places first-hand often elicit new information and serves as catalyst for more in-depth questions and discussion' (Driskell 2002). The author went further to suggest that guided tours should come after some other activities—such as interviews—when young people have developed a stronger relationship and trust with project team members.

Guided Tour

A number of participants, either by their depth of knowledge on the issue(s) or personal experiences were invited either to lead our research team on guided tours of community water sources or for focus group discussions. The decision to adopt a guided tour approach was based on a number of reasons: Firstly, to directly observe the places and issues that have been identified during the first two stages of the study. Secondly, to develop a better understanding of key issues with regard to water supply in the communities and discuss them in detail. Thirdly, to understand the connections and routes used by children in their water collection and distribution activities. Finally, to interact directly with the children in the context of their local area based on the belief that younger children may reveal more with this method than with the one-day observations (Fraser 2004).

Two children (5 and 7 years) were recruited for 'child led-tours' of water collection sources. However, only one guided tour to the River Niger was finally conducted as most of the water collection activities of the children took place within 200metres radius of their homes. The tour was undertaken after I had completed the observations of water sources and natural interviews, with the hope that the children would have developed a stronger relationship of trust with us and I had obtained sufficient information on the places I will be visiting. Photographs taken while on the guided

tour were presented for discussion during the subsequent group discussion. Data from the guided tour is presented elsewhere.

Focus Group Discussion

The group discussion was conducted after the guided tour. The focus group, as 'a way of listening to people and learning from them' (Morgan 1998) gather together people from similar backgrounds or experiences to discuss a specific topic of interest to the researcher (Krueger 1994; Morgan 1997). As I mentioned earlier, I intended to use the group discussion as 'a supplementary source of data' (Morgan 1997; Morgan 1998) for a number of reasons. Firstly it allows access to children who may have found the "one-on-one, face-to-face interaction 'scary' or 'intimidating'" (Madriz 2000).

Secondly, new information from interviews can be fed back into the focus group session for clarification and discussion. In the same manner, reports from field observations of water sources can also included. This way, language use, slang's and specific contextual issues that are observed or photographed may be feed back into the focus group sessions for clarification and discussion. This feedback—recycling 'between method triangulation' was used to reinforce, enrich and complete gaps in knowledge (Denzin 1989)

Thirdly, 'instead of asking questions of each person in turn, it encourages participants to talk to one another, asking questions, exchanging anecdotes and commenting on each other's experiences and points of view' (Kitzinger and Barbour 1999). This provides an insight into how a group thinks about an issue and about the range of opinions and ideas, which may then be used to build a detailed picture of specific concerns (Dawson, Manderson et al. 1993). Finally this method has been successfully used in a number of studies with children (Green 1995; Green and Hart 1999).

Conducting the Focus Group Discussion:

A child's social world spans a wide range of settings, the home, school, and the streets. How will I tackle the recruitment of children from these different settings? How do I bring them to sit together and discuss issues that are of interest to me as a researcher? Scott had noted that a child's expression of personality is often context

dependent and a child who is reserved and shy at school may be boisterous and outspoken at home and vice versa. Thus the setting is likely to influence the way children respond (Scott 2000).

Studies on children at school is considered more cost-effective than home. However, the school context becomes a problem if the answers are supposedly confidential as children are likely to quiz one another on their responses. Moreover, children of all ages are likely to be influenced by the proximity of classmates and be tempted to give answers that will win favour with peer group—socially desirable answers (Robson 1997).

On the other hand, group studies with children at home are more time consuming and costly. Though studies conducted in homes may raise the interest of other household members, paradoxically, this raises the risk that the presence of parents or other siblings may influence the answers. Complete privacy is often impractical or elusive in the home (Scott 2000).

I carefully considered these options and opted to hold the group discussion on school premises for the following reasons: Firstly, the two earlier detailed group discussions on household's water provision (Focus groups 1 and 2) were directed at children between the ages of 6 and 13yrs (appendixes 1 and 5) and focus group 3 included the views of children who were not attending any school. Since children between the ages of 14-17yrs, were not include in the earlier group discussion, it was considered important to hold a separate group discussion to capture their views on water collection.

Secondly, it was more cost and time effective to conduct the group discussion within the school compound where they were recruited than arranging to hold group discussions in locations outside the school premises. Thirdly, since they were no longer actively involved in household's water collection, the exclusion of children within this age group who were not attending school was considered not much of a problem as my primary interest in this group of children (as I stated earlier) is to find out why they stopped fetching water for households.

The decision to hold the group talks on school grounds introduced a new problem. An hour long discussion involving a group of school children may disturb their normal

class hours. I finally resolved that the focus group discussion should take place in the first week of the new term (when the children are engaged in tidying the school compound, cleaning and dusting of classrooms) before normal classes resume in full. After scheduling an appointment with the principal of the school, the focus group discussion was held in the first week of the third term— specifically April 2005.

Conducting focus group in schools often involves the dependency on 'gatekeepers'²⁰ to screen potential participants and this creates the issues of access and recruitment (Kitzinger and Barbour 1999). To minimize these, children for the group discussion were recruited from the third batch of interviewees either by their depth of knowledge on the issue(s) or personal experiences after transcribing and reading through some of the transcripts. This was made possible because I had documented names, schools and classes as part of the interview process.

I drew up a very flexible schedule that covered the key issues to provide some form of structure to the group discussion. I included (a) specific contextual issues— observed or photographed during the observation stage of the study or during the guided tour. (b) New information from interviews and (c), emergent themes from the preliminary analysis into the draft of the group discussion guide.

Practicalities

Arranging the group discussion require a careful preparation that takes time— arrangements to visit the school; securing the consent of the school head armed with the letter of approval from the Ministry of Education and that of parents and guardians using the consent forms—to paying reminder visits to each participant to ensure that they are all present on the appointed day.

The group discussion involving children between 12 to 17yrs was conducted in a secondary school. The focus group session involved a formal phase of discussion and an informal phase which continued after the formal phase had ended. Both phases were audio-taped after obtaining the consent of the participants. The informal discussion was audio-taped by simply leaving the tape running after the formal discussions had officially ended.

²⁰ Gatekeepers—if the researcher leaves it to a teacher to ask for volunteers in a school, then she or he may find that the entire group is made up of prefects or members of the school's debating society.

I arranged some sort of entertainment for the participants—soft drinks and biscuits. While the participants enjoyed their refreshments, I used the opportunity provided by the informal discussions to further explain my work to the participants while teasing out explanations on specific areas of the study that were still unclear to me. I had to tactfully discourage some teachers who tried to either hang around or join in the group discussions by explaining to them that the idea of the study is for children to freely give their views without the influence of observing adults, particularly that of their school teachers.

Focus groups are distinguished from the broader group interviews by the explicit use of group interaction to generate data (Kitzinger and Barbour 1999). Following Kitzinger's suggestion, I adopted note taking and a summary of the meeting with group participants as the first level of recording. After seeking the consent of the participants I audio tape-recorded the sessions as this provides a far richer research access to the discussions (Kitzinger 1993).

Myers and Macnaghten noted that tapes of group discussions are more difficult to transcribe than one-to-one interviews and may require the services of an experienced audio-typist (Myers and Macnaghten 1999). Due to the paucity of funds to conduct the study, I could not afford the services of an experienced audio-typist and I had to transcribe the sessions unassisted. The physical effort to sit for hours listening and trying to identify the different voices was quite harrowing although I adopted and used a voice check²¹ during the sessions.

I had to repeatedly re-wind the tapes in order to be certain that it is the same speaker and not a different one that continued a sentence. Another challenge in focus group transcription is the tendency as Kitzinger and Barbour observed 'for participants to make sudden, apparently 'illogical' leaps, and/or interrupt or shout at each other' (Kitzinger and Barbour 1999).

As a moderator, I usually intervene by asking the participants to finish off their comments as well as ensure that individual voices are not drowned out (Barbour 1995). Although I fully transcribed the session verbatim, I was tempted at a stage to

²¹ The moderator will simply ask people to go round and give their first names on the tape at the beginning of the session.

adopt Babour's advice that 'the prudent mixture of written and tape-recorded sections can cut down the amount of transcription required for the research'(Barbour 1995).

Data Analysis

This section of chapter three deals with the process of analysing my data based on which the two result chapters (Chapters four and five) were produced. Although the analysed data is presented as separate chapters, the actual analytic process was however interwoven with data collection throughout the three stages of the main research.

Three major sets of research data were produced from three different methods—field observations, interviews and focus group with children. Data collection itself as Miles and Huberman put it, 'is a selective process' and the researcher may end up with a great load of data that may be of little use or worst still misleading (Miles and Huberman 1994). As I have demonstrated in the preceding section of this chapter, I relied entirely on my conceptual framework and research questions to condense and order all the material collected as my defence against data 'overload.'

I carried out the data analysis in two separate but related phases. In analytical phase I, analysis of field notes from field observations were documented as descriptive accounts and vignettes. In analytical phase II, data from field interviews and group discussions were analysed by adopting a computer assisted (Nvivo) thematic content analytical approach.

Analytic phase 1: Field Observations

As I aim to describe the concrete experiences of children in household's water collection, I begin the first phase of analysis with descriptive accounts of children's water collection activities in relation to the activities of adults at selected water sources. Next, I present vignettes on two children based on data from the field observation tagged 'a working day in the life of a child'. According to Miles and Huberman, 'a vignette is a focused description of a series of events taken to be typical or characteristic of the case under study. It has a narrative story like structure, that preserves chronological flow and that normally, is limited to a brief time span, to one or a few key actors, to a bounded space, or to all three' (Miles and Huberman 1994).

It is, as Erickson put it, 'a vivid portrayal of the conduct of an event of everyday life, on which the sights and sounds of what was being said and done are described in the natural sequence of their occurrence in real time' (Erickson 1986). I then ended data presentation of phase 1 with the descriptive account of the guided tour to the river.

Analytic phase 2: Interviews and Focus groups

Since I also aim to explore children's perspective on their experiences, I applied a 'thematic content' analysis to the transcripts of the interviewees and focus groups accounts in the second phase of analysis. I considered a thematic content analysis as suitable for this phase of analysis because it aims to (1) report the key elements of respondent's accounts (2) identify typical responses and (3) answer questions about salient issues for particular groups of respondents (Green and Thorogood 2004).

The major challenge was how to retrieve and analyse the data generated from one hundred and twelve (112) interviews and three (3) focus group sessions without getting lost in the loads of transcripts. My approach to this problem was to constantly remind myself of the study aims and to keep my 'conceptual lenses' focused on the study objectives while allowing myself, as Miles and Huberman advised, to be 'open to' and be 're-educated' by things I didn't know about or expect to find (Miles and Huberman 1994).

Specifically, data analysis began while I was still undergoing data collection at the various water sources in the two communities. Themes that were highlighted during the observational phase were carried forward into the analysis of the reported accounts from field interviews and group discussions in phase 2.

The initial exclusion of children between the ages of 15-17yrs in the first batch of interviews led to my hypothesis—that they were probably involved in water collection when they were much younger (age related transfer of responsibility for water collection). It was this hypothesis that informed my decision to include their views in the study, thus moving towards what Patton called confirmatory data collection —'deepening insights into and confirming (or disconfirming) patterns that seem to have appeared' (Patton 2002).

The thematic content analysis was approached in two steps one leading to the other, although movement back and forth continued through out the analytical process. Step

I involved the computer-assisted management of data using the computer software known as 'Nvivo'. I 'manually' analysed the outputs from Nvivo in step 2.

Thematic Content Analysis: Step 1

One good way of accomplishing a thematic content analysis of interview or focus group transcripts is to use 'scissors and paste' technique, while printing out each respondent's case on a different colour paper to enable the analyst to trace their origin. I however opted for the use of Nvivo computer software to electronically help me to 'cut and paste' and search for words or phrases.

My decision to use Nvivo was based on (1) the fact that the 'scissors and paste' technique will be very time consuming giving the limited time I had available for data analysis. (2). Securing enough coloured printing paper or a combination thereof, for a total of one hundred and twelve interviews and three focus groups sessions, might prove too challenging for me as an analyst working alone. However, I must state at the outset that I used 'Nvivo' only for the management data.

Data Management Process (A brief overview)

Importing and 'case-coding' study transcripts

I began the data management by converting the transcripts of the interviews and focus groups sessions from 'word documents' into Nvivo-compatible 'rich text format' before importing them into Nvivo. I printed out hard copies of the 'document-text-report' on each imported document and filed them separately. As an example, the document text report on Focus Group discussion 3 is presented as appendix 15.

Case-coding

With importation safely completed, I moved on to 'case-code' each interview transcript according to the community of origin, gender and age range. The focus group and field observations were also 'case coded'. This group 'case-coding' or case identifier technique enabled me to maintain a trace on the origins of interview transcripts, their gender, age and age-ranges as well as the observational and group discussion data. This method is similar, though electronically accomplished, to the

use of different colour papers. The diagrammatic representation (case model) of the 'case-coding' for Cable-Point community is presented as appendix 16.

Thematic-coding

Having completed the case identifier at the group level, I then moved down to the level of the individual transcripts within each group. This involved reading through the transcripts and classifying the 'themes' that recur or are common in the data set (Green and Thorogood 2004). I identified and categorised the recurrent or common 'themes' from the interviewees and focus groups accounts. These 'themes' were built around my research questions although emergent themes from the field observations and reported accounts were taken on board. The results were summaries of the respondent's accounts around these thematic issues.

Codes in Nvivo are electronic tags or labels for organising units of meanings to the thematic information compiled during a study. Codes are usually attached to 'chunks' of varying sizes—words, phrases, sentences or whole paragraphs that are connected to a specific setting. In other words, codes link the information or data in the transcripts to the related themes.

The organising part entailed my categorising and coding the various 'data chunks' as I explore the transcripts under appropriate themes. These codes enabled me to quickly find, pull out and cluster the segments relating to a particular theme or research question. Nvivo clearly identifies the case and specific paragraph from which the excerpt was retrieved. In this thesis, the document case and paragraph numbers are indicated as footnotes on the pages where these excerpts are cited to allow cross-checking by other researchers. Excerpts of 'health concerns' under the thematic heading 'health implications' that was 'pulled out' from the study data using this coding system is presented as appendix 17.

Data Display

Next, I produced 'data displays' from the 'pulled out' materials. Data display 'is a visual format that presents information systematically, so that the user can draw valid conclusion' (Miles and Huberman 1994). My decision to adopt and use a 'data display' approach was informed by Faust's warning that extended text can overload human-information-processing capabilities, the outcome of which may be a

misleading or faulty analysis of events (Faust 1982). Miles and Huberman in their contribution suggest that 'displays are a major avenue to valid qualitative analysis (Miles and Huberman 1994).

Adopting the data display technique proved quite useful to me in reducing large amounts of complex information into easily understood configurations. Looking at the displays also helped me to understand what was happening. It was at this point in the study, that Steps 1 and 2 became interwoven as I frequently 'shuttled' between producing different displays relating to and across themes and trying to draw my conclusions. As an example, the data display for a set of study variables (22. Water source; 28a. Water access; 28b. Reason; and 29b. Reported symptoms following completion of the task of water collection) across the 112 interview sets is presented as appendix 18.

Thematic content analysis: Step 2

In Step 2 of the thematic content analysis and using the data displays produced from the Step 1, I moved on to explore the relationships between the themes, comparing them across communities, age and gender. Questions such as; which kinds of respondents express what concerns about fetching water, were answered during this second step of analysis. Descriptive accounts of field observations are presented in chapter four. Findings from the thematic content analysis of interviewees and focus groups are thematically presented in chapter five.

Ethical Considerations

In this section I consider the ethical issues raised by this research and the steps that were taken first as an individual and jointly as a research team to address these issues. There have been many discussions around information, consent and competence in research with children. Much of the discussion focused on the question of when children are old enough to give a competent informed consent and the protection of children from abuse and exploitation.

While most of the issues raised in these debates remained unresolved, I felt it was safer to adopt the recommended procedure of passing through an ethics committee and obtaining the consents of the participants and that of their parents. Ethics guidelines advise obtaining the parent's consent in research with minors under 18 as well as minors consent (Alderson 1999).

The approach I adopted in this study was to obtain the consent of children first, before approaching their parents or guardians in order to avoid the situation where children may be persuaded to participate in the study by their parents or guardians against their wishes. Obtaining the consent of children in different settings—streets, homes and schools—presented different sets of ethical problems. How do I obtain the consent of a child in the street, either on the way to fetch water or carrying water home after fetching it, to participate in the study?

An information sheet written for children was considered appropriate and was adopted in this study (Alderson 2004). An information sheet explaining the rights of the children (presented in their local dialects during the spoken personal contact) that was used during the study is presented as appendix 10.

Experience from the pilot studies that I conducted between 2001-2002 and 2003-2004 in multi-ethnic schools however suggest that the participants prefer an informal personal spoken contact conducted in their local dialects. The children were more at ease and less disturbed than with formal approaches that require filling forms or reading through leaflets. This has been documented in a study on young people conducted in a similar context. Many of the children were put off when asked to read or reply to formal notes or book future appointments (Alderson 1999).

The pilots also brought to light the community resident's apprehension towards signing any type of form, because of the constant harassments and threats of arrests by over enthusiastic government and at other times, illegal revenue collectors, who capitalise on their ignorance to extort money from them. In the translated words of a potential interviewee:

'If am free to participate and free to leave the study at any point of my choosing, then why can't I be free to decide whether or not to sign this form?'

It was these that informed my decision to use an informal spoken contact to obtain the consent of children in the streets after explaining the aims and objectives of the study in their local dialects. This approach proved particularly useful in recruiting children who otherwise would have opted out of the study just to avoid the distraction of reading and signing forms. Their informed consent was audio taped after obtaining their permission to do so in place of the formal consent forms I had prepared to obtain their signatures—Appendix 11.

Having obtained their consent, the question of the competence of a child to give an informed consent still remains unanswered. When is a child old enough to give a valid consent? There are suggestions for standardised tests to assess competence, but these may result in 'unduly high thresholds of competence that many children and adults fail to reach' (Alderson 2004).

Alderson believe that there is no simple answer to these questions and suggests that much depends on each child's own experience and confidence and the skill with which the researchers talk with children and help them to make un-pressured informed decisions (Alderson 2004). This suggestion proved to be very useful in conducting opportunistic interviews at the selected water sources in the communities. On several occasions, as I indicated elsewhere, I had to rely on the child's willingness to participate in the study, age and the time available to the child to carry out the water collection task before taking the decision whether to or not to conduct an interview. A useful compromise was to seek the potential interviewee's consent to obtain the parents or guardian's consent to conduct the interview.

Sometimes, I had to deal with the added complexity of parent's or guardian's consent particularly when they were not available at that point in time. In such situations,

Masson suggest that it may be more ethical to act on the child's consent than to require the fully informed consent of a parent, where a child can 'understand enough to distinguish research from other interventions and to understand the impact on them of participating'. In her words, 'such an approach will give children the maximum opportunity to have their views and experiences recorded and avoid the exclusion of children whose parents would not respond to a request..' (Masson 2004).

When the study is being conducted in private settings—homes and privately owned water sources—team members took time to explain to all participants and owners of selected water points, the objectives of the study and record taking in order to obtain their informed consent and cooperation. The cooperation of parents or guardians was obtained before commencing the data collection from participants in their homes (Information sheet and consent forms for parent's or guardian are presented in appendixes 12 and 13 respectively).

To conduct the study within school settings, I sought the clearance of the Delta State Ministry of Education. Formal ethics committees are intended to protect vulnerable people under study. Although there is no known official ethics committee in Delta State, I do believe that one will surely be accessible in other states in Nigeria. However, Delta State Ministry of Education will neither clear nor permit any researcher to conduct research in any school in Delta State unless an application is made and the ministry sets up it's own informal 'ethics' committee to review the research methods and submits its reports to the honourable commissioner.

Appointees of these committees usually span the various ministries including the ministry of Health and the ministry of Youths sports and culture. I submitted three copies of my document explaining the aims and giving details of the methodology to the Ministry of Education. The ministry's approval was obtained before proceeding with the study within the school settings.

I also paid particular attention to the timing of the interviews in schools. The timing of each interview was such that it neither coincided nor took the place of formal lesson. These interviews were conducted during the free periods with the agreement of the interviewees. When the timing is not suitable to the potential interviewee, it was rescheduled for a time and place that is suitable for the interviewee—after school

hours or during the weekend. This approach has been successfully used with children in South Africa where the children popularly referred to it as 'Saturday school' (Griesel, Swart-Kruger et al. 2002).

The group discussions were conducted during the first week of the third term before the children settle down to normal classes. As stated earlier, the first week is usually spent cleaning, dusting and sweeping the classrooms as well as weeding the school premises. Conducting the group discussions during this period ensured that the group discussions did not disrupt normal class work.

The timing of the opportunistic interviews at the water points were such that it was determined by the potential interviewees. The interviewees were given the option of having the interviews fixed for a time and place suitable for them. Some opted to have the interviews there and then while others opted to have the interviews in their homes after completing the water collection tasks. Finally, I sought and obtained clearance from the London School of Hygiene and Tropical Medicine's Ethics Committee (Appendix 14).

Examining the unanticipated field challenges

In this section of the document, I examine the different stages of the research process focusing on the unexpected field challenges that I faced, how I addressed them and how these may have influenced the outcome of the research. I considered my personal characteristics and assumptions that I carried into the study and how this might have affected my interactions with the children. Finally I consider the contextual dynamics between the time the pilots were conducted and at the point when the main study was carried out.

I had an unanticipated encounter with a gang of drug dealing youths at the Marine side of the River Niger bank in Cable-Point community. They moved to their present location on the banks of the River Niger after the pilot stages of this study had been concluded. Their presence on the bank of the river therefore came as a rude shock when I returned to conduct the main study. Fears were expressed that note taking at the beach might raise the suspicions of the drug dealers, which might compromise the safety of an observer by being mistaken for a law enforcement agent.

The gang leader of the drug dealers however assured me of their cooperation after I held a meeting with him to introduce myself and explain the reason for our presence at the beach. To further familiarize myself and my team members—when they finally summoned enough courage to join me, I played a round of table tennis right there at the river bank with one of them while drawing shouts of admiration and encouragement from the others.

In conducting the interviews, a number field challenges were also encountered. The first challenge was the duration of the interviews. For the most part of 'Stage 2' of the research process, interviews involving children who were seen either actively collecting or distributing water at the various water sources were undertaken. Despite the fact that a semi structured interview method was adopted, I discovered that the average time for the first set of interviews was 20mins. Most of the children simply answered the questions that were put to them and at most times, needed additional prompts to continue. However, there was an appreciable increase in the duration of the interviews before I concluded the first batch of interviews.

According to Robson, 'anything under half an hour is unlikely to be valuable; anything going much over an hour may be making unreasonable demands on busy interviewees..' (Robson 1997). I will argue that this does not necessarily apply to this study because of the specific nature of the research aims. In addition, there was little difference in the average duration between the group of the interviews that were conducted at the water sources—a situation which may not allow for long interviews—and those conducted in the comfort of the children's homes or schools suggesting that long narratives even if they meet the one-hour criterion may not necessarily contribute to the aims of the research.

I will argue that the duration of an interview will not necessarily determine the usefulness of the data collected. What I attempted to do, was a trade-off between breadth and depth (Patton 2002). I had initially set a target of 50 interviews, by which time I hoped to have achieved theoretical saturation. In the light of the situation, I found that it took a total of 112 interviews before theoretical saturation was achieved. I believe that what I might have missed out due to short interview sessions was accounted for through the increased number of interviewees that was required to reach theoretical saturation.

The second challenge is the audio-recording. The recorder and transcribing machine along with other items were brought over from London before the commencement of the field studies. By doubling the number of interviewees, there was the need to procure more cassettes to record the additional interviews. It was quite disappointing to find that the type of cassette that could fit into the recorder as well as the transcribing machine was not available locally. To overcome this problem, some of the cassettes were re-used after transcribing the contents thereby compromising record keeping. However field notes were kept to supplement the transcribed data.

Other unplanned occurrences encountered in the field include the demand for monetary gratification by some teachers for the students recruited into the study in their schools. One school principal consented to our conducting some interviews in his school on the condition that one of us will help to teach a subject in one of the classes. While I hesitated on account of this rather strange request, one of my research assistants—who incidentally is a former teacher—volunteered to take the class before I was permitted to conduct the study.

Not all the people approached consented to participate in the study. Parents of some of the children refused their participation for fear of persecution. The 'Mai-ruwas' (water vendors) in Cable-Point refused to be interviewed after the money they initially demanded to ensure their participation was presented to them. One of them later explained that their demand for monetary inducement was meant to put us off. The impacts of these drop-out cases are discussed in detail under the limitations of the study.

Apart from these, there were several financial obstacles that were encountered during the fieldwork. These include; the increased budget for the salaries of the two research assistants—as the fieldwork was now extended to include more interviewees; The increased budget for transport fares to conduct the additional interviews; the increased budget to cover the additional rents charged by the owner of the business centre that was used to type and collate the materials from the field at the end of each outing. While these financial impediments were quite distressing at the time, they had little impact on the data collection process as I continued collecting data until we became assured that further interviews will not yield new information before I stopped (theoretical saturation).

Finally, organising 'Stage 3' of the study was particularly tasking. By the time the study moved into this stage, most of the children had lost interest in the study. A number of them gave excuses about being busy and opted out of the study. However, when they learnt that I provided refreshments and snacks during the group discussion that I conducted, many of them returned back intending to participate in the remaining group sessions. They were however disappointed to learn that the study was over—at least the group discussion aspect of it.

Reviewing my position as an adult researcher working with children

Seeing children fetching water is not an unfamiliar sight for most residents, particularly so for those living in the disadvantaged communities of Asaba. What was new to me is the experience of viewing the situation with the eyes of children. Hart in his contribution warned that the researcher should assume nothing about what children want (Hart 1997). Treating children as experienced informants thereafter was not particularly difficult for me as I was eager to find out what they had to say concerning their roles in household's water collection.

In this section of the document, I considered my position as an adult researching into the issues of children. I reflected upon the initial assumption that I carried into the field regarding my personal relationship with children before moving on to discuss the challenges of the traditional African adult-child cultural relationship, my different personalities and how this may have affected the outcome of the research.

I grew up in a culture where the extended family is still operational and my extended family (considered small by average standard) can only be estimated (as it's a taboo to count children during our gatherings) at about 200 persons. I went into the field with the assumption that the experience I have acquired from interacting with large numbers of children during our annual family gatherings will prove very useful in facilitating my interactions and winning the trust of children in the two study communities. Our initial visits to the study communities proved me wrong as I realised that experiences from my extended family interactions was no advantage when dealing with children of non-relatives in these settings. Winning the trust of the children was only achieved through a progressive trust building contacts with community members that was stretched over a period of three months.

The African socio-cultural setting is such that children are given very little opportunity to express opinions and are culturally excluded from the world of adults. This socio-cultural exclusion is illustrated, Ogbuagu pointed out, in that 'children are not expected to contribute when adults are discussing issues, are spoken for, and practically make no input into family discussions and decision-making. Under such

detrimental control, many children grow up un-inquisitive and timid' (Ogbuagu 1994).

The following is an extract from one of the interviews conducted in pigeon English and transcribed verbatim.

Interviewer: *Is there anything more you want to tell me about water?*

Chi: *Yes*

Interviewer: *Like?*

Chi: *Like say that water is a, a, like something you can use to help yourself to keep yourself busy*

Interviewer: *What more?*

Chi: *Like whenever they sent you message to go, then don't be disobedient because if you disobey, it will not be good because God say that you should not be disobedient.*

The cultural setting might have affected the quality of the data collected in this example. To minimise the effect the cultural setting may have on data collection I adopted the use of probes to elicit details of experiences. A probe is a device that is used to get the interviewee to expand on a response when you intuit that she or he has more to give, such as the use of; 'Like?', and 'What more?' in the example presented above. This approach is however not considered as an appropriate replacement for free, uninterrupted, un-pressured volunteered information from children.

To supplement and improve on the data quality, I conducted child-led tour and focus group discussions. These were designed to ameliorate some of the adult-child problems I might have encountered in Stage 2 of the study. It was hoped that having the support of peers and friends may encourage those children who might have found the one-on-one interviews intimidating, to speak freely.

Another important issue that might have affected data quality was the different personalities—doctor, researcher, man and non-community member—that I carried into the study. Some of the children I was told during the course of interviews, had met me (*most probably had seen me, Asaba being a small town*) working at the Asaba General Hospital. Being familiar with the usual consulting room 'doctor-patient' line of questioning, a number of the children became cautious and apprehensive while

answering the interview questions. Others assumed that the direction of questioning will eventually lead to disease detection and not wanting to be labelled 'sick' were quick to add '*I don't feel anything*'; '*I feel fine*' to even questions that were primarily meant to assess how they felt about the water collection task.

For those who did not recognise me as a doctor, being introduced as a research student elicited a different kind of reaction. Many viewed my position as an adult and a researcher in terms of power to bring about social change. The part of the explanation that the research is solely for academic purposes was conveniently ignored as some could still not come to terms with the fact this was mainly an academic activity. This was evident when some of the children were asked at the end of the interview sessions, if there was something more that they would like to tell me concerning water which I have not included in our questions. Some of the participants seized the opportunity to make their request for State provision of water. The following is an extract from the transcript of an interview that was conducted in Ibo language. The name used is a pseudonym to protect the identity of the participant:

Interviewer: *Is there anything you will wish to tell me that I could have missed during this interview?*

Chidi: *I will be happy if they (i.e. government) can provide us with water so that we don't have to go buying from private individuals because they keep reviewing their prices upwards all the time*

From their point of view, the research is a medium to communicate their concerns and requests to the appropriate authorities with the hope that something could be done to improve the situation. I sympathised with them (based on what I observed in the two communities) and shared their hope that something could be done in terms of service provision.

My sympathy and hope does not however remove me from the difficult position that I found myself, as I recall the trust written all over their young faces as they looked hopefully at us. I was vividly reminded of Scott's advice that 'researchers should be aware of the authority position that adults hold with children' (Scott 2000). On one hand, the children hoped that the study will bring about a change in the water situation in their communities while on the other hand; I hoped to conclude the study

and complete my Ph.D. The question is; how would I face these children when I have completed my training and return to Asaba? Will I simply tell them that 'I've told you earlier that all those activities you eagerly participated in were simply to earn me a PhD?'

I then resolved not just to conduct a study for children to express their views—as I had earlier intended—but to go a step further by “carrying their ‘voices’” (Bartlett, 2002; page 6) across to the appropriate ministries in Delta State.

Study Results

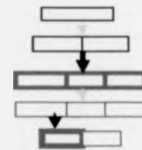
Chapter Four

Results—Field Observation

Introduction

Observing and documenting a detailed account of the water collection activities of children at the various water sources was a very difficult task, particularly when those activities were undertaken at different times, in different areas and for different reasons. However, experiencing the activities of water collection within the two study communities have been quite instructive and thought provoking for me, first as a researcher and as a resident of Asaba.

This chapter is divided into two sections and focuses on the first objective of this study: To describe children's involvement in the social organisation of household water supply based on data from field observation and the guided tour.



In the first section of this chapter, I present descriptive data from selected water sources in the two study communities. I start by describing the settings and patterns of day-to-day water collection at the water points while attempting to draw attention to children's activities in relation to the activities of adults in the same situation. I estimated the distances of the homes of water carriers to the various water sources by either following them back to their homes or sending my research assistants to do so.

The African Charter on the welfare of children states 'that there can be no rights without responsibility' (OAU 1990). I explore the idea of 'responsibility' as it relates to the activities of children in their water environment and try to develop the concept of 'responsibility transfer' as it relates to age and gender. I also present how community members try to balance the concept of water as an 'economic good' with the concept of water as a 'free gift' of God.

Although I observed and collected field data from different water sources, I have chosen to group them under four major categories. I present the descriptive account of each category using an example from one community, while supplementing the

descriptive accounts with interesting similarities and differences from the other community, before concluding the section with a summary of important findings.

There are three reasons for adopting this presentation approach. Firstly, the activities within the four major categories are typical of the sources included in this study. Secondly, the patterns and people involved though similar in many respects however showed interesting differences that are better appreciated in a comparative presentation. Thirdly, presenting similar types of water sources one after another might result in repetitions that may prove uninteresting and boring to the reader thereby robbing the document of its intent. Descriptive accounts on each water source are however presented as appendix 20.

In the second section of this chapter, I present descriptive data from the one day working life of six children in order to explore the time spent on water collection in relation to other household's chores. I was compelled to focus my attention on this comparison as previous studies suggest that household's water collection is carried out along with other household's chores (Francavilla and Lyon 2003; Guarcello and Lyon 2003).

I also present the narrative account of the guided tour to the River Niger. As stated elsewhere, the tour, apart from providing the opportunity to interact with children in the context of their local area, was also intended to provide a better understanding of key issues in household's water supply in terms of the geographical terrain and routes used by children in their water collection activities.

I tried to explore the concept of 'helping hand' as well as examine water collection activities of children as a 'non-hazardous' domestic activity in the summary of the data from the one day field observation and findings from the guided tour.

Chapter Four—Section One

Water collection in Cable-Point and Otu-Ogwu communities

Community Water Sources

Community's water facility and its relation to health in terms of its quality and quantity have been the focus of many research and recurring international discourse (Esrey and Habicht 1986; Cairncross 1990; WHO 1999). The location of the water source with its unique situational challenges for children from 'un-piped' households have been well documented (White, Bradley et al. 1972 page 132; Thompson, Porras et al. 2001 page 59). The need to reduce the 'drudgery' involved in water collection has now become the focus of recent attention (Moriarty and Butterworth 2003).

To better understand the task of water collection, as indicated in chapter three, I identified three sites in Cable Point and four in Otu-Ogwu communities for field observation. The aims of the field observation of selected sites were: a) The observations of actual tasks of water collection; (b) To identify those who are involved and (c); to describe how these tasks are carried out. Four categories of community water sources were selected and observed. These were:

1. Yard-tap —in Otu-Ogwu community, none in Cable-Point community
2. Borehole water locations—Jarret Street in Cable-Point and Necab in Otu-Ogwu
3. River— The banks of the River Niger in both communities
4. Packaged water depot—Do-Good in Cable-Point and Butebe-Butebe in Otu-Ogwu

These four major categories of water sources are seasonally supplemented with rain water collection. I present data from the four categories starting with a brief description of the physical environment, then the operational pattern where applicable, before moving on to the activities of the people that I identified at the various water sources.

(1) Yard Tap—Public Network Supply

Although both communities at one point or the other in their histories had public taps, there was no trace that it once existed in Cable-Point community.

In Otu-Ogwu community a few houses remain linked to the public network via in-house connection while four houses were connected to yard taps. As stated elsewhere, relics of abandoned public taps may be seen in some parts of the community. (Photo inset shows an abandoned relic in Otu-Ogwu).



Only Otu-Ogwu community had a formal water supply linked either in the form of in-house connections or as yard taps to the public network at the time of this study. The Delta State Water Management Board's huge reservoir towers above and could be seen from all parts of Otu-Ogwu. This reservoir which now supplies water to Otu-Ogwu and adjoining areas of Asaba, in the past, had supplied water to Cable-Point community as well.

However, water supply to Cable-Point community was discontinued due frequent damages to the pipeline network and residents have failed to re-establish the community's connection to the public network. This calls to question the demand-responsive approach—where it becomes the 'responsibility of the community to define what are acceptable levels of service based on its ability and willingness to pay the full cost of service development'—that is being advocated by the World Bank (Nicol 1998).

Wealthy house owners in Otu-Ogwu that are linked to the public network, had to retain their connection either by carrying out repair work on their pipeline using workmen paid from their pockets or by bribing officials from the water board to carry out the repairs²². Residents that are either not connected to the public network or cannot maintain their connection had to live with the intimidating presence of a gigantic water reservoir towering over their heads that only supplies water to 'other' houses.

²² This information was obtained during the visit to the community head.

Out of the twenty or so yard taps that were supposed to be connected to the public network, only four were operating in the community. This raises the issue of State's failure to ensure equitable access to water despite international rhetoric's on the human right to water that 'entitles everyone to sufficient; affordable; physically accessible; safe and acceptable water for personal and domestic uses' (United Nations Economic and Social Council 2002).

The Setting

The yard tap under study is located in front of a multi-room one-storey building that houses about twenty different tenants. An eight feet deep erosion gully runs across the front of the house and the only access to the yard tap is through a single wooden plank placed across the wide gully. This made access to the tap difficult and dangerous and no form of mechanical assistance can be adopted for water collection from outside the compound. The tap was constructed in such a way that a key and padlock can be used to restrict the use of the tap. Several families within the building as well as residents of other surrounding houses within 100m radius shared this yard tap.

Photograph 9: Pa Johnson's yard tap in Otu-Ogwu Community



Special demonstration for researcher



A woman and children waiting to fetch water

Operational pattern

Due to poor maintenance of the public water scheme, water supply was intermittent and from the information I gathered, these yard-taps run for about 8hrs twice or thrice weekly. Despite the regular payments of 300Naira (£1.20p) made by individual yard-tap owners to the water board, water supply to the community remains unreliable and insufficient. Data from one week field observation of the yard tap revealed that the

tap ran twice and for about 6hrs on each occasion. Supply was further disrupted by local power cuts. During power outages, the tap stops running and residents seek alternative sources.

This directs attention to the issue of community's choice of water supply. For Otu-Ogwu residents, unlike Cable-Point residents (without a public water supply system), yard taps ranks first in their choice of sources. Only when the yard taps are not running do they consider using alternative sources. This issue of ranking was further explored during the interviews and focus group discussion with children.

Activities

Mostly children and a handful of women were seen fetching or waiting to fetch water at the tap on the two occasions that the taps ran. When water starts dropping continuously from the tap, this indicates that water is being supplied to the tap from the public network and that regular flow is about to commence. Seeing this, the padlock on the tap head will be opened with a key for water to be fetched.

Mostly children and women rush to the tap to queue up with their water containers as soon as they realize that the tap is about to be opened to the public. These women and children reside within 100m radius of the tap location²³. Children aged between 5-14yrs, used buckets, plastic bowls and jerry cans of between 5-20 litres capacity to fetch water from the yard tap. Boys and girls carry water on their heads without any form of mechanical assistance (such as wheelbarrows or pushcarts) because of the difficult terrain.

The children usually stand around chatting and comparing water containers while waiting to take their turns. Depending on the number of people that are waiting and the tap's flow rate, it takes these children between 10-30mins from the time of arrival to collect water from the tap.

Because of the pressure of people waiting to fetch water, rinsing out the water vessels is not always possible as others may seize the opportunity to place their containers under the tap. In addition, rinsing out water vessels particularly those with narrow

²³ The distances were estimated either through direct identification by the resident research assistant or by following them home where there are doubts as to the exact location of their homes.

necks such as jerry cans, are in most cases considered unnecessary. Only children residing within the compound fetch water without queuing. Ninety-eight (98) children were counted to have collected water from yard tap on one of these two occasions, out of which twenty-four reside within the compound.

Compared to children, a fewer number of women fetched water from the yard tap during the period of the field study. These women reside within 100m radius of the tap. They used metal basins, jerry cans or plastic paint buckets of between 20-25 litres capacities, collecting water and leaving the tap vicinity within 5-15mins of their arrival. Although women generally wait for their turns to collect water from the tap, they are sometimes given preferential treatment, especially if they live within the compound. Twenty-one (21) women collected water from the tap. Twelve (12) of them were in-house residents.

Apart from residents of the building, washing of clothes and other items at the tap is not allowed. The owner of the yard tap or his children stay by the tap when it is opened to the public to enforce this no washing law as well as collect money from those fetching water from the tap. A bucket or a 20 litre Jeri-can of water costs 5Naira (2 British pence) while a 10 litre container costs 2 Naira 50kobo (1p). Only residents of the compound 'appear'²⁴ to collect water free of charge.

Nicol reported that when water collection is made substantially easier in terms of shortened distance to the source, the task would be transferred to younger children (Nicol 1998). The activities at the yard tap therefore draws attention to the issue of 'generational transfer' of the responsibility for water collection in relation to the distance to water source. As indicated elsewhere, mostly children and a few women were identified at the yard tap on the two operational occasions.

The distance to the yard tap, particularly so for those living within it's vicinity—when compared with the distance to the nearest borehole from that location (about 200m) or the river (about 150m)—appear to affect parent's decision concerning their children's water collection activities. Thus, the task of water collection despite the difficult geographical terrain was considered easy enough for children to undertake.

²⁴ The apparent free water collection recorded during the field observation was later proved wrong during the subsequent interview with children. From the reported accounts, resident pay a monthly water charge to the landlord of the house.

Household's distance to the yard tap also provides an insight into children's assessment of water collection task with regard to carrying water on their heads and the distance they have to walk to the source. Despite the fact that considerable waiting time can be saved by going to the borehole to fetch water, they still preferred to wait for between 10-30mins to take their turn to fetch water from the yard tap. Carrying water over a longer distance was obviously less preferred by the children to that of an alternative with a shorter distance.

It may be argued that children may prefer the source since it provides an opportunity to play and socialise. Field observation however show that these children sometimes argue and/or fight over turns to fetch water and leave the source. Besides, some needed to make repeated visits and store up enough water in their homes within the limited time the tap was known to run. This makes a case for bringing water sources—if not possible in an in-house connection—at least closer to the homes. Table 5 summarises the activities at the yard tap.

Table 5: Field Observation of a Yard Tap in Old-Dawa

2004 (1 week)

The People involved	The Number Involved	Type of Utensil Used for Water Collection	What they did at the Yard Tap	How long (mins) it took to collect Water	Distance to their Homes. (An estimated calculation)
Children	98	Small buckets and Jerry cans of about 5-20litres.	The children usually standing around chatting and waiting to take their turn. This is usually determined by the time and order of arrival. Only the children residing in the compound fetch water without queuing	It takes between 10 to 30mins to fetch water from the time of arrival. This is however subject to the flow rate of the tap which in most cases is unpredictable.	Within 100m
Women	21	Buckets, 10-25litres jerry cans. Basins that could hold between 20-25litres of water	Wait for their turns to fetch water but are frequently given preferential treatment	It takes between 10-15mins to fetch water from the time of arrival	Within 100m

(2) Water Boreholes

The influx of population into Asaba in early 1990's following state creation rapidly overwhelmed the aging public water supply system in the town (Osadebay 1985; Ministry of Information Asaba 1996). The new State government responded by providing private boreholes to supply water to top government officials, while the rich and elite resorted to self-supply. Poor households within the disadvantaged communities responded differently by developing various informal routes of household's water supply.

In Cable-Point community, private water boreholes developed in response to the complete breakdown of the public network supply. In Otu-Ogwu community, it developed as a result of the inability of the public supply network supply to meet the community's water requirement. This different developmental beginnings and its interaction with African traditional and religio-cultural practices were manifested in the types of informal sector that developed to fill the service vacuum left by the failure of the public sector.

Borehole ownership and drilling in Asaba is essentially an individual or community affair. There is no form of supervision with regard to water quality or standardisation in terms of drilling specification on the part of government or agency appointed by government. No clearance is required or obtained for the right to sell water to the public. The decision to sell or not to sell water is purely a private affair.

The following descriptive account is essentially from field data on Jarret Street borehole in Cable-Point community, supplemented with data from Necab borehole in Otu-Ogwu community in order to highlight the similarities and differences in their operations within the two study communities.

The Setting

Jarret Street borehole is on the east side of Cable-Point at an estimated distance of about 500m from the bank of the River Niger. There are two buildings of four separate flats within the compound housing the borehole. The entrance is a single

huge metal gate with beautiful flowers lining the inner wall area. The water sources are two drill points each networked to serve the dual functions of personal supply (household's consumption) and commercial supply (water vending activities).

Water pumped out of the underground water table from the 'personal' supply sumo-pump is temporarily stored in a 500 litres capacity plastic storage tank that is linked to the landlord's apartments by one and half inch pvc pipes. Pipes to four tanks in a linear connection link the commercial drill source. There are two metal tanks, each of 2500 litres capacity, coated with black paint to prevent rust and two other plastic tanks of 500 litre capacities networked together in this linear arrangement. Each tank has a single outlet tap for customers to collect water.

The People Involved

The people involved in the water collection activities at the Jarret Street water borehole in Cable-Point were predominantly Mai-ruwas (water vendors), children, women and a handful of other men that collected water simply for household's use.

The Mai-ruwa system of water collection and distribution was introduced into Cable-Point by its predominantly Muslim Hausa/Fulani ethnic group, in response to the breakdown in the public network water supply system. Field data reveal that while the activities of children, women and other men identified at the borehole in Otu-Ogwu are similar to those of Cable-Point, Mai-ruwas were conspicuously absent in Otu-Ogwu community.

Comparing the data from one-week field observations in each community, simple counts of the people that collected water from Jarret Street borehole in Cable-Point revealed that 12% were men, 9% were women while 79% were children. In Otu-Ogwu community, counts at Necab revealed that 3% were men, 12% were women while 85% were children.

A closer examination of the field data on children revealed that the girls that visited the boreholes in Cable-Point during the field study were between 6-11yrs. Only two

girls of between 12 to 17 yrs visited this water source during the same period. One of the girls was subsequently recruited for an individual interview.

Religio-cultural 'gender' related 'responsibility transfer'

Past studies reported on the activities of water vendors in the supply of water to households essentially from an economic perspective, particularly when men and boys were involved (White, Bradley et al. 1972; Whittington, D; et al. 1989; Cairncross and Kinnear 1992; Thompson, Porras et al. 2001). Others focused on the transfer of the responsibility for water collection to girls in urban areas (WaterAid 2000a; WaterAid 2000b).

Data from the current study while supportive of an economic motivation in the activity of water vendors, however suggest, that in addition to the economic incentive, religio-cultural factors also influence the activities of door-to-door water vendors as well as the activities of women and girls in household's water collection.

The religio-cultural restriction in the mobility of women and girls within the public domain affected their participation in water collection in situations where household members had to fetch water from sources outside the immediate environment of their households. In these situations, Black noted in a study conducted in Nigeria, they enlist the help of their children 'who go daily to the water source with the biggest container they can carry' (Black 1990).

Findings from the present study support this view. The socio-cultural practice amongst the Hausa-Fulani ethnic groups, permit girls of 12 to 13 yrs to be given out in marriage. The need to preserve their sanctity by restricting women and girls of marriageable age from contact with non relative males in the predominantly Muslim Cable-Point community, necessitated the 'transfer' of water collection 'responsibility' of women and girls (12 yrs and above) in un-piped household's to Mai-ruwas. Household's water collection role of women and girls were thus replaced by commercial activities of Mai-ruwas.

Operational Pattern

Field observation reveal that Jarret borehole in Cable-Point opens for water vending business at about 6am in the morning and closes at 8pm. Water collection takes place within these hours only stopping for one hour break from 12noon -1pm. The attendant (a 14yrs old boy) in-charge of collecting money, records the sales and balance of customers in a small notebook, particularly those of the Mai-ruwas, that habitually deposit money for several water collection trips in advance.

The competing though intermittent service provided by the formal sector in Otu-Ogwu resulted in the adoption of a different operational pattern. Data from field observation show that business in Necab borehole as in other boreholes in Otu-Ogwu community, was conducted between 7am and 12noon and between 5pm and 9pm. All water collection activities virtually close down in the afternoons in most areas of Otu-Ogwu.

Payment as a rule must be made before collecting water. The borehole attendant is able to calculate any advance payment against water collected by simply drawing short horizontal lines beside the name of the buyer to show how many times s/he has collected water and the balance for such deposits.

In both communities, the container size determines the price that is charged for water. In Cable-Point, a 10 litre container of water cost 2Naira (8p) while a 20-25 litre container cost 3Naira (12p). Mai-ruwas however pay a discount rate of 2Naira 50kobo (10p) for 25litres. In Otu-Ogwu community, water was slightly cheaper. A 10 litre container cost 2 Naira (8p) while a 20-25 litre container cost 2Naira 50kobo (10p).

The cost of water in the study communities when converted to British currency may seem very cheap by average British standard in terms of volume to cost. However, when one relates the cost of water to the government approved minimum wage of seven thousand, five hundred naira a month (the equivalent of £7.50p per week), then the situation of residents of these disadvantaged communities will be better appreciated. Many of those that are self-employed (such as petty traders) usually earn less than the approved government wage per week.

The price charged for water collected is also determined by type of power supply. When there is power outage²⁵ and the borehole is powered by the standby generator, an additional 50kobo (2p) is added across all price ranges. This account raises the issue of the current drive to privatise the National Electric Power Authority (now known as the Nigerian Power Holding Company of Nigeria Plc) by the Nigerian government and its implications for the cost of water.

Residents of these disadvantaged study communities most times manage to avoid paying their electric bills through illegal connections.²⁶ They may be forced to bear the full costs when profit driven private companies take over. This has implications in terms of quality and quantity of water available to poor households as residents may be forced to resort to cheaper but unsafe alternative sources.

Children of 5yrs and below may be permitted to collect water with very small containers of about 2litres free of charge. Field observation of this group of children reveal that most of the water fetched was lost through spilling before they actually reach their homes. At other times, payment may be waived for older children after either a convincing appeal to the attendant/s or when some friends who live close to the borehole come out to fetch water. It did not take long for me to notice that there is provision for a 'free' drink of water whenever the need arises, provided a cup or bottle was used to collect water.

This 'charge' pattern highlights the importance of traditional socio-cultural practice and value placed on water. Water is considered an 'economic good' at certain volumes, but for relatively small volumes, the view of water as a 'free good' comes into play. The general response is an attempt to balance the economic view of water (profit making and 'cost' recovery for drilling the borehole) with the view of water in most traditional African communities that is hinged on the concept of water as a 'free gift' from God.

²⁵ In this thesis 'power outage' refers to a temporary suspension of operation in electricity supply.

²⁶ As a resident of Asaba, am constantly reminded of the operative and economic impacts of the illegal connections by residents of these communities through episodic NEPA television announcements.

Activities

The Mai-ruwas are usually the first to arrive at the borehole and some may be seen before 6.30am waiting for the attendant to open the gate. These Hausa/Fulani men and boys ranging between 16-40yrs carry water in two twenty-five-litre aluminium coated tin gallons suspended by two ropes from a wooden pole (about 1m long) placed across their shoulders. A 'Mai-ruwa' of Cable-Point poses for a quick photograph in the photo in-set (Fieldwork 2004).



Mai-ruwas frequent Jarret Street borehole spending on the average between 2-4mins from their time of arrival to their departure. They hawk water from door to door supplying households that can afford to pay for it. After rinsing out their vessels at the start of their water vending business in the mornings, most failed to rinse or wash in subsequent water fetching visits to the borehole. Although most reside within 100m radius of the borehole, their commercial activities may take them as far as 500m radius with an average of between 15-20 water collection trips per day.

During the period of observation in both Cable-Point and Otu-Ogwu communities, a few men residing within 50m of the borehole collected water with either 20 or 25litre Jeri cans for household use. They simply filled the vessels with water without spending time to either rinse or wash them. Two of the men carried their water containers home on their motorbikes while others simply used their hands.

The women that visited boreholes in both communities reside within 100m radius of the boreholes. This may be attributed to the fact that the growing numbers of private boreholes have progressively reduced the distance to the water sources for un-piped households. The women used mostly metal basins or buckets of between 20-25litres to fetch water and some spent time rinsing-out or washing their basins or buckets. They may wait when necessary for their turn to fetch water and sometimes mediate between children quarrelling over turns to fetch water. Most times, these women leave the borehole source within 2-6mins of their arrival.

Children in the two study communities

The children that frequent Jarret borehole in Cable-Point and Necab in Otu-Ogwu reside within 100m radius, carrying plastic buckets, bowls and Jeri cans of between 10 to 25 litres capacities. Children seldom rinse-out nor wash their vessels before fetching water. A few of them spent time socializing before and/or after fetching water, spending between 4-15mins from their time of arrival to their departure from the water source. Some children use either wheelbarrows or pushcarts to transport water while others carry their water containers on their heads.

Cable Point Children

Cable-Point girls usually spend between 2-15mins collecting water. While some carry between 10-15litres of water on their heads from the borehole to their homes, others transport between 20-30 litres of water with wheelbarrows or pushcarts. On the average, these girls make between 5-10 water collection trips per day.

Previous studies had reported that improvements in water supply brought about an increased school attendance especially for girls (WaterAid 2000c; WaterAid 2001; Guarcello and Lyon 2003). Field data reveal that water collecting activity in Cable-Point appear not to have any fixed pattern as water collection may begin at any time during the opening hours of the borehole and continue to about 6.30pm when it finally stops.

This pattern of water collection suggests that the majority of children did not adopt the formal western education. The predominant practice in this essentially Muslin community is the Islamic form of education that had been tailored to suit their religious beliefs and practices. Thus, improvements in water supply may bring about little or no improvement in the adoption of western forms of education for girls in this community.

Boys of between 8-13yrs were those that repeatedly visited the borehole at Jarret Street. They carried between 10-25 litre containers—mostly plastic jerry cans to collect water, made an average of 3-5 trips and spent between 2-5mins at the borehole on every trip. Most of the boys used either wheelbarrows or pushcarts to transport several water containers at a time. Only a few of them carried water on their heads.

Boys of between 15-17yrs did not visit nor use Jarret Street borehole during the field observation. Those that did (Mai-ruwas) were for commercial purposes.

Otu-Ogwu Children

When compared to Cable-Point, field data reveal that fewer numbers of children in Otu-Ogwu adopted mechanical assistance to transport water. Paradoxically, these were children living within the immediate vicinity of the borehole. Majority carry their water on their heads because of the difficult terrain. In this context, the type of method adopted to transport water is essentially influenced by the community's geographical terrain.

In Otu-Ogwu, girls of between 6-13yrs fetch water from Necab borehole in the mornings and evenings. While engaging in adult-child negotiations, these girls sometimes cheat to collect more water than they paid for and occasionally engage the attendants in prolonged arguments. They spent between 3-5 minutes at the borehole and carried between 10-25litres of water, for the most part on their heads, making between 6-9 trips before going to school in the mornings. In the evenings, the girls appear more relaxed and noticeably not in a hurry to leave the borehole, spending between 5-15 minutes before or after collecting water socializing.

Otu-Ogwu boys of between 6 to 14yrs generally visit Necab borehole a little earlier than girls in the mornings carrying between 10-25litre containers—mostly plastic jerry cans to collect water. They made an average of 7-12 trips spending between 2-3mins at the borehole on every trip. Those residing near the borehole used wheelbarrows or pushcarts to transport water while those a little distance away had to carry water on their heads because of the bad geographical terrain.

The bigger boys most of the time intimidated the younger boys and girls for turns to collect water. However, these big boys (16-17 yrs) usually collect water for their car washing business opposite Necab fence as well as for the production of 'local pure water.'²⁷ Tables 6 and 7 summarises the activities at Jarret Street and Necab water boreholes.

²⁷ About 50mls of borehole water tied in small transparent nylon bags then refrigerated before being sold frozen to the members of the public.

Table 6: Field Observation at Jarret Street Borehole in Cable-Point.

2004 (1 week)

The People Involved	Type of Utensil Used for Water Collection	What they did at the Borehole	How long (mins) it took to collect Water	Distance to their Homes. (An estimated calculation)
Men—Mostly Mai-ruwas and a few other men	Twenty litre aluminium tin gallons and Jerry cans (20-25 litres)	Simply collect water most times in haste, neither rinsing their hands or vessels after the first early morning water collection (ie water vendors)	Within 4mins of arrival	Within 100 metres radius.
Women	Buckets, Basins and 20 litre water gallons.	Rinse the basins and buckets but not jeri cans. Fetch water. Hand rinsing was not considered necessary. Wait when necessary to collect in turns. Mediate in quarrels between children over turns to fetch water at the borehole.	Between 2-6mins depending on the size and number of containers	Within 100 metres radius
Children	Buckets, 5 litre gallons, 10-15 litre jerry cans and small basins of about 10 litre	Do not rinse their water vessels or hands before fetching water; fetch water; run around with friends. Discuss and argue over who arrived first.	Between 2-15mins from the time of arrival.	Within 100 metres radius

Table 7: Field Observation at Necab Borehole in Otu-Ogwu.
2004 (1 week)

The People Involved	Type of Utensil Used for Water Collection	What they did at the Borehole	How long (mins) it took to collect water from the time of arrival	Distance to their Homes. (An estimated calculation)
Men	Mostly Jerry cans and buckets between 10-30 litres capacity.	Collect water, wash cars and motor cycles in one corner of the compound, wash clothes and discuss politics or other events with other men.	4-5mins	Within 100m radius of the Borehole
Women	Basins, Jerry cans or paint buckets of between 20-25 litres capacity	Collect water. Occasionally, come out to the borehole to fetch an erring child that is either playing at the borehole or have stayed beyond expected time to fetch water and return home.	3-5 mins	Within 100m radius of the Borehole
Children	Buckets, Basins, Bowls and Jerry cans of between 10-20 litres	Discuss; Collect water; Play and compare water containers: commercial car washing.	2-15mins	Within 200m radius of the Borehole

(3) The River Niger

Historically, the River Niger played a central role in the lives of Cable-Point and Otu-Ogwu residents and served as their only source of water. Men, women and children go to the river to have their baths, wash household utensils and clothes. Thereafter, women and children fetch water home for cooking and to fill drinking water pots.

Although diverse alternative water sources now exist in both communities, the River Niger continues to play a supplementary role in household's water supply. While the river is ranked after boreholes in their choice of water sources, children continue to visit it to fetch water in the mornings and evenings. A few of them (particularly those not attending any school in Otu-Ogwu) may be seen playing or swimming in the river in the afternoons.

The Setting

The River Niger courses east from Otu-Ogwu through the Cable Point peninsular creating two banks known to Cable-Point residents as 'Marine' on the western side and the 'Cable' on the eastern side. On the 'Marine' side, a tarred road coursing through the community slopes sharply downwards and terminates at the bank of the river. The town's abattoir is situated along this road shedding its waste contents into the water drain that flows downwards into the river. The area suffers continuous erosion although the road appears unaffected. Old brick houses reminiscent of the colonial era and makeshift shops built with planks, line both sides of the road to the river bank.

The river bank locally referred to as 'Cable' lies on the south eastern end of the cable peninsular. The river bank can be approached from a rough bush path lined with refuse dumps on both sides. The houses along this path are mostly mud houses and a few old fashioned brick houses.

Photograph 10: Different views of Cable-Point river-side activities



Children fetching water in the river



Sand excavation in progress

The People Involved

The view of the river from the cable beach is pleasant presenting a unique natural river scene. Casting a cool shade over the otherwise hot river bank is a huge tree growing a few feet from the edge of the river. Drug peddlers and addicts (between the ages of 14-35 years) converge under the shade of this tree and can be seen dealing in marijuana and other unidentifiable substances.

A little distance away from the tree, some gamblers were engaged either in the game of cards or placing bets on the game of table tennis. There were no noticeable drug related activities in Otu-Ogwu.

On the sandy banks of the river in 'Marine' and 'Cable' (as in Otu-Ogwu), men, women and children may be seen engaged in different activities. Most of the men were busy excavating sand, commercial laundry and the ferry business. A good number of women were engaged in different trading activities, while children were washing dishes and other household's utensils as well as fetching water from the river.

During the one week field observation at the Cable-Point river bank, counts of the people present on the beach showed that 23% were men, 64% were women while 13% were children. The counts of the people that actually collected water from the river for household's use however revealed that out of the men present at the bank,

only 7% actually fetched water for household's use. Six percent (6%) of the women and 46% of the children present at the river bank fetched water from the river for household's use.

In Otu-Ogwu, out of the two hundred and eighty-nine people counted on the beach, 23% were men, 33% were women while 44% were children. However, only 9% of the men present at the river bank actually fetched water for household's use. 17% of the women fetched water domestic use, while 36% of the children present on the river bank fetched water for household's use.

These values appear to point towards two important issues. Firstly the 'risk perception' with regard to the drug related activities and how this affects children and women's decision to visit the river for either water collection and/or recreational activities such as swimming. In Cable-Point, a large proportion of the children that visited the beach were there specifically to fetch water. In Otu-Ogwu on the other hand, a higher proportion of children that visited the river did not fetch water but were there to swim or play.

Secondly, gender imposed 'transfer' of water collection 'responsibility' and the activities of water vendors may also account for the lower number of women that collected water from the river in Cable-Point when compared to Otu-Ogwu women (This is however subject to further research as the total population of women and children was not taken into account in this study).

Apart from drug peddlers, Cable-Point and Otu-Ogwu show remarkable similarity in the activities of people at the river banks. The following descriptive account is based on field observation in Otu-Ogwu community because of its unique geographical challenge to children.

Activities

Activities on the river bank start at about 6am in the morning and ends at about 7.30pm. Men come from areas within 1km radius of Otu-Ogwu for sand excavation, fishing, farming, commercial laundry work and dyeing of textile materials. Only six (6) men, out of the sixty-seven (67) that visited the river during the period of the field

study, actually fetched water for household use. They used small plastic or metal buckets of between 10-20litre capacities carrying the water for an estimated 50m to their homes²⁸. Three of the men stayed on the river bank to wash clothes while the other three simply fetched water and left.

Most women visit the river bank in Otu-Ogwu either to engage in petty trading or farm the land along the banks of the river. The women come from different areas of Asaba as far as 2km from Otu-Ogwu²⁹. Others come to the river either to collect water or wash various household's items and possibly bath in the river.

Making up this second group are the women who reside within an estimated distance of 100m of the river. They collect water with either buckets or basins carrying between 10-25litres of river water on their heads to their homes. Some used the opportunity to socialise with neighbours and friends. Out of the ninety-six (96) women that were counted at the river bank during the field observation, only nineteen (19) of them collected water for household's use.

Activities of Children

The activities of children at the river bank appear to be limited to the mornings and evenings with little or no activity in the afternoons. A handful of children may however be seen swimming, washing clothes or collecting water during the afternoons. Out of the 126 children counted at the river bank during the field study, only 71 collected water for household use.

Boys visit the river earlier than girls to collect 'settled water'³⁰ arriving at the river side as early as 6.30am carrying either 10litre gallons or jerry cans of between 10-20 litre capacities. These boys (between 9-14yrs) reside within 200m radius of the river. Normally, younger and older age groups do not visit the river early in the morning.

Because of the early morning dew, ascending the steep and slippery 35ft climb back to the community is a tricky and dangerous task. The water that spills from their

²⁸ As the practice, positive identification of individuals by resident research assistants was used to estimate the distances to their homes.

²⁹ Information was obtained during a conversation with one of the women.

³⁰ See words and specific contextual usage.

water containers as they return from the river further complicates the situation by making it more slippery. A high degree of dexterity is needed to climb back up.

The boys hardly exchanged pleasantries between themselves, each making between 5 to 10 trips to the river. From 7am, older boys of between 15-17yrs start appearing at the river bank. They seldom engage in household water collection but are mostly engaged in commercial activities such as fishing, textile work (tie and die), laundry work, car and motor bike washing, sand excavation and farming.

After a lull in the afternoons, the activities at the river side peak again between 3.30pm to 5pm and finally stops at around 7:30 pm. In the evenings, boys of between 5-6yrs join those in the 7-14yrs age bracket in water collection, carrying mostly plastic 5litre gallons and 10litre jerry cans.

Otu-Ogwu girls arrive in little groups of three to five at the river side from 7am, a little later than the boys. Like the boys, they reside within 200m radius of the river and mostly girls of between 7-14yrs are involved in the morning water collection.

They make roughly 5 to 7 water collection trips carrying between 10litres to 25 litres of water on their heads on the now very slippery slope due to the earlier activities of the boys as well as the water spilling from their own basins, buckets or jerry cans. This slows them down considerably as great care must be exercised to avoid injury from falls. Each water collection trip takes between 20 to 25mins.

In the evenings, the girls appear more relaxed while carrying out the task of water collection. Some visited the river bank in Otu-Ogwu simply to socialise with friends while others use the evening to store enough water to avoid coming to the river the next morning³¹. They make on the average 10-15 water collection trips while doing some washing or swimming.

Girls within the 15-17yrs age range that visited the river bank in the evenings did so either to wash clothes or food items while some seized the opportunity to socialise. A casual enquiry revealed that their non participation in river water collection was to do

³¹ Information obtained from a casual chat with one of the girls seen making repeated trips.

with 'maturity'³². The water spilling from the containers on their heads normally wet their clothes which temptingly hugs their matured body curves thus risking unwanted attention from boys. For this reason, they leave the task to younger girls.

The riverside activities highlight the important role the River Niger plays in the lives of residents of both communities. Despite its low ranking on their desirability list of water sources, it still serves an important supplementary function especially for households that cannot afford to pay for all its water requirements.

Most households fetch their drinking water either from yard taps or boreholes while the river provided water for other household's requirements. It is only in extreme cases that households resorted to drinking river water. Tables 8 and 9 summaries the activities at Cable-Point and Otu-Ogwu river banks respectively

³² Data from field interviews and group discussions with children later related this 'maturity' to what, in this study, is referred to as the 'transitional age'.

Table 8: Field Observation at the River Niger Beach in Cable-Point.

The People Involved	The Number Involved	Type of Utensil Used for Water Collection	What they did at the River	How long (mins) it took to collect Water	Distance to their Homes. (An estimated calculation)
Men	11 out of 154	Metal and plastic paint buckets of about 20 litres capacities. 5 litre gallons and bowls	Excavate sand, commercial laundry services and textile dye and tie activities. Play table tennis and other recreational activities such as sight seeing, swimming. A meeting place for drug peddlers and users. Generally involved in the use of water at the river bank. Only a few collect water for household use.	Within 1 min	Within 50m radius
Women	27 out of 431	Basins and Buckets of about 20 litres. A few with 10 litres basins.	Do a little trading on the bank of the river. Wash clothes, collect water, bath and socialise.	Between 1-3mins depending on the size and number of containers	Within 50m radius.
Children	76 out of 88	Buckets and basins of between 10-20 litres	Wash clothes, vegetables and domestic/kitchen utensils. Collect water, swim, play games and do a little fishing.	Actual water collection takes between 30 secs to 1 min.	Mostly within 100m radius.

Table 9: Field Observation at the River Niger Bank in Otu-Ogwu.2004 (1 week)

The People Involved	The Number Involved	Type of Utensil Used for Water Collection	What they did at the River	How long (mins) it took to collect water	Distance to their Homes. (An estimated calculation)
Men	6 out of 67	Few collect water with 10 litre buckets	Excavate Sands, fishing, farming, commercial laundry activities, swim or bath in shallow water and some collect water for domestic use.	1min	Within 50m radius of the river
Women	19 out of 96	Basins and buckets between 15-25 litres	Collect water, wash clothes and food stuffs such as fermented cassava and vegetables among others. Farm around the river bank, sell cash crops, do a littler fishing and have their baths.	1-2 mins	Within 50m radius of the river
Children	71 out of 126	Basins and Small buckets between 10-20 litres	Collect water, Wash clothes and food stuffs such as fermented cassava and vegetables. Swim and play around the river banks.	1min	Within 200m radius of the river

(4) Packaged Drinking Water

An unplanned but progressive response to the failure of the public sector and the passive privatisation policy of the government in the early 90s was the development and proliferation of private water packaging companies.

Starting as locally refilled bottled ice water in the 80's, these small scale enterprises gradually laid the foundation for the present water packaging companies in Asaba. With the introduction of private labels and heat sealing system for water packaging, the patronage of refilled bottle water gradually declined and faded out of existence.

Packaged water companies began in response to the drinking water problems associated with the rapid but unsupervised construction of boreholes in Asaba. Due to the 'impure water' from a number of these boreholes, community residents preferred fetching water from locations where, in their understanding, the water is 'pure'. Packaged water was the result of this concept of water quality hence they were locally referred to as 'pure water'.

Presently, there are countless competing water-packaging companies in Asaba—Jemok, Lily, Chi-Chi, Jolly, KK, etc. Many of these water packaging companies started off as one-room small-scale water packaging enterprises using one or two door-to-door hawkers as their distribution outlets but later grew into large-scale water packaging companies with one or several distribution trucks supplying several outlet depots in Asaba.

The following descriptive account is taken from the field data on a packaged water depot in Otu-Ogwu. Those of Cable-Point, apart from the number of children involved showed remarkable similarities to Otu-Ogwu in their activities.

The Setting

Butebe-Butebe packaged water depot is located on the western end of Otu-Ogwu about 200m from the community's main market. A standard shop with facilities like a deep freezer, a table, a chair, notebooks, a generator, and bags of packaged water

filled the depots deep freezer (maximum capacity of about 30 bags). The depot retails several brands of package water—Jemok pure water, De' Jolly pure water, Goody-Goody pure water, Chi-Chi pure water amongst others.

Photograph 11: Butebe-Butebe packaged water Depot in Otu-Ogwu Community



Butebe-butebe Depot



Posing for a quick photograph

In front of the shop, about 30-40 bags of different brands of packaged water were arranged in neat rows on the floor. Apart from being a convenient place to leave them while waiting to cool them in the freezer, the display of bags of package water also serves as a form of advertisement to attract potential customers to the shop. Inside the shop sat the twenty-three years old lady attendant³³ who conducts the daily sales.

The people Involved

The usually customers are children between 8-13 yrs and incidentally, it was these children that gave the depot its name because of the owner's frequent use of the Ibo phrase 'butebe-butebe', meaning 'bring more-bring more'. Compared to Otu-Ogwu, fewer girls in Cable-Point were involved in the sale of packaged drinking water.

Operational Pattern

Data from the field observation show that 'Butebe-Butebe' opens for business at about 7am in the morning and closes at 6pm. The sale of package water begins at around 11am, peaks at about 3.30pm and finally ends at about 5pm. The different

³³ My research assistant provided the information on the attendant being well known to her.

manufacturers supply packaged water to the depot early in the morning and sometimes in the late evening. The depot receives supplies directly from the water packaging companies at the rate of 50Naira (£2) per bag. Four hundred to five hundred and fifty (400-550) bags are delivered to this depot every two days¹⁴.

Activities at the depot

Children start arriving at the depot to buy packaged water at about 11am in the morning. The children come from within 500m radius of the depot but some have been reported to come from as far as 1 km radius because of the depot's location near the community's main market.

They arrive at the depot with small plastic bowls, collect packaged water usually in tens from the attendant, spend some time to count and check for leaks in the sachets and within 3- 5mins of their arrival at the depot, hurry off towards the market making between 5 to 10 trips before the day was over. Some spent time hanging around the depot calculating the money made from previous sales or discussing recent events with their friends. Business at the depot peaks between the hours of 1.30pm -5pm.

Some children are sponsored by their parents or guardians while others use their pocket money as the initial capital to start the business. The children buy a chilled bag of packaged water containing 20 sachets for 70Naira (£2 80pence) and sell a sachet of 60cl for 5Naira (20pence), thereby making a profit of 30Naira (£1 20pence). The overall profit depends on the strength of the day's sale. The chilled and sometimes frozen packaged water from the depot enhances sales especially on hot sunny days.

The children's cycle of buying packaged water from the depot and selling to the members of the public continues until 5pm in the evening. Sixty-three (63) children visited Butebe-Butebe depot during the one week field observation. A number of them were below six (6) years but these usually arrive in the company of older family members. It was children between the ages of 7 and 14 yrs that were actively involved in the sale and distribution of packaged drinking water making money either for their families or themselves.

¹⁴ Information obtained from the register of the attendant

These children may be subdivided into two groups based on their activity period. (i) The first group start their activities at the depot around 11am and continued to the end of the business day at 5pm. Their transactions at the depot covered school hours and were mainly house-helpers, orphans and school dropouts. (ii) The second group joins the first at about 1.30pm and stop with them at about 5pm. This second group are school children that embark on the 'pure water' business after school hours.

The countenances of the children at the depot during school hours (the first group) were clearly different from that of the group that joined them after school hours (the second group). The former, most of the time wore a look of resignation, whereas the latter group wore that of happy anticipation, clearly enjoying the task. Children between the ages of 15-17 years, though not actively involved, may be compelled to do so for a variety of reasons. In most cases sixteen to seventeen year olds usually work as depot attendants.

Ten women residing within 100m radius visited the depot during the period of observation. Seven of them arrived carrying large plastic bowls, paid and collected 2 to 3 bags of packaged water. The women spent some time counting the sachets, checking for leaks and left within 5mins of arrival at the depot. The other three women came to the depot either to discuss business with the attendant or to check on their children or wards.

Only four men residing within 50m radius visited the depot during the field observation. The men arrived with either pushcarts or wheelbarrows collecting 10 to 20 bags of packaged water on each trip. The men, I was told are owners of shops that act as sub depots within Otu-Ogwu. They spent time to pay and load the bags into pushcarts or wheelbarrows and left the depot within 20mins of arrival. They sometimes either act as children's sponsors by providing the initial capital or give them bags of packaged water for retail sales. Table 10 summarises the activities at the depot.

This descriptive account raises concerns about children's education, as some of the children present at the depot during the period of field observation were clearly not attending school. Others combine schooling with economic activities after school

hours. This has implications for their level of academic performance and the possibility of dropping out of school. It may however be argued that the income generated from these activities is supportive of their education especially children whose family income cannot fully support their education. However, street hawking, for the most part, exposes children to danger particularly young girls. The question that remains unanswered is how improvements in household's water supply can reverse the early quest for economic entrepreneurship—initiated and nurtured by the (passive) privatisation of water—amongst children from poor households.

Table 8: Field Observation at 'Butebe-Butebe' in Otu-Ogwu.2004 (1 week)

The People Involved	The Number of Involved	Type of Utensil Used for Water Collection	What they do at the Depot	How long (mins) it takes to collect Packaged Water	Distance to their Homes. (An estimated calculation)
Children	63	Small 10 litre plastic bowls of	Collect sachet water in tens or twenties but mostly in tens. Count the sachets and check for leakage. Hang around the depot checking previous sales and discussing events.	3-5mins	Usually within 500m radius. Some as far as 1 km radius
Women	10	Big plastic bowls of between 15-20 litres capacity	Pay and collect water for sale mostly in bags of twenties. Count the sachets and check for leakage. Don't usually hang around the depot to discuss with other women	Within 5mins	Within 100m radius of the depot
Men	4	Pushcarts or wheelbarrows	Collect water in bags of twenties, pay, check for leakage and load the bags into either wheelbarrows or pushcarts.	Within 20mins	Within 50m radius of the depot

Summary of water collection activities

The water collection activities in Cable-Point and Otu-Ogwu communities demonstrate the extent of State's failure to ensure equitable access to water in Asaba. The complete breakdown and abandonment of the public water network system in Cable-Point community also presents another dimension to the debate for the application of demand responsive approach in poor communities.

Past studies have highlighted the effect of time savings on parent's decision to transfer the responsibility of water provision to children (White, Bradley et al. 1972; Guarcello and Lyon 2003). Findings from the present study lend support to this view. Because of the long queues and considerable waiting time at yard taps in Otu-Ogwu (10-30mins), the responsibility for water collection was passed over to children. This partly accounts for the absence of men and the fewer numbers of women when compared to children that visited the selected yard tap during the one-week field observation.

Household's distance to the yard tap also provides an insight into the children's assessment of water collection task. Those waiting at the yard tap prefer the shorter distance to the yard tap, despite the fact that considerable waiting time can be saved by opting for other time saving alternatives. While waiting-time at the yard tap may affect parents decision on whether on not to transfer water collection responsibility to children, distance to the source appear to be one of the factors that influence children's decision concerning the choice of a water source.

The different developmental beginnings and their interactions with socio-cultural practices manifested in the types of informal sector that developed within the two study communities. In Cable-Point community, private water boreholes developed in response to the complete breakdown in the public network supply. But because of the socio-cultural and religious practices of the predominantly Muslim Hausa/Fulani ethnic group, a coping strategy of Northern origin was adopted.

Restrictions in the mobility of women and 'unmarried' girls within the public domain created a situation where their water collection activities was replaced by the commercial activities of Mai-ruwas (water vendors) resulting in a 'gender' related transfer of 'responsibility' in response to the failure of the

public sector. For the non-Muslim residents in the community, distance and time spent at the water source appear to be the factors that influence parent's decision to pass the responsibility of water collection to children, thus highlighting an age related 'generational transfer' of the 'responsibility' for water collection.

In Otu-Ogwu community, while the distance to the boreholes may have influenced parents' decision concerning children's water collection role, the competition provided by the intermittent public network water supply and the absence of water vendors (whose activities in Cable-Point continue throughout the afternoons) led commercial borehole owners to adopt an operational pattern that was adapted to the activity pattern of children in the community. This highlights the important role children play in Otu-Ogwu community household's water collection activities.

Generational issues amongst children may also be involved in the decision on who takes up the responsibility for household's water collection. Field data show that older children (16-17yrs) are not actively involved in domestic water collection. This suggests a sort of 'transitional age' when a child is considered or considers him/herself too old for domestic water collection.

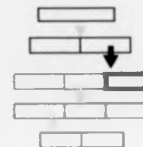
While religio-cultural factors may complicate field data on girls in Cable-Point community, the fact that boys act as *Mai-ruwas* (water vendors) in Cable-Point and are seen to be actively involved in car washing and commercial laundry activities around boreholes in Otu-Ogwu, are suggestive of a sort of 'transition' from domestic water collection to commercial activities. To provide a better understanding of this phenomenon, the idea of 'transitional age' was explored further during the field interviews and focus group discussion with children.

What the descriptive accounts in this section of the document emphasise, are the different developmental responses within the two study communities and how these have resulted in the increased participation of children in household's water provision. What this study did not provide is the degree of children's involvement (with regard to adult-child and girls-boys population ratios) in household's water collection, as the total population of adults and children in both communities were not taken into account.

A Working Day in the Life of a Child

As I stated elsewhere, my aim of conducting field observation tagged 'a working day in the life of a child' was to explore the time spent on water collection in relation to other household's chores. Past studies suggest that household's water collection was carried out along with other household's chores (Francavilla and Lyon 2003; Guarcello and Lyon 2003) and data from Pilot study 1, suggest that children are involved in household's water collection as well as in the sale of packaged drinking water.

Field observation was conducted using three boys and three girls from Cable-Point and Otu-Ogwu communities that regularly used one of the four major types of water sources outlined in the preceding section, to explore water collection activities in relation to other household chores. The six children agreed to participate in the study and I observed each of them for one day. The data presented in this section of the document is based on the data from field observation tagged 'a working day in the life of a child'.



Since the objective of this study is to describe children's involvement in the social organisation of household water supply and not their involvement in other household's chores, I present brief narrative accounts of only two of the six children (the youngest boy and the youngest girl) in this section of this document. The narrative accounts of the other four are available as appendix 21.

In other to facilitate interesting comparisons, Table 11 summaries the activities of the six children focusing on the time spent on water collection and sale of packaged water in relation to other activities.

1. Unoma

Unoma is a nine year old girl residing with her unmarried auntie who makes a living from buying and selling different commodities in the Cable-Point community. Her guardian also harbours five other girls in the one room they occupy while sharing the five bedroom bungalow with other tenants.

The Setting

The house is about ten metres away from the nearest borehole and about two hundred metres from the river Niger. There is no public/yard tap within its immediate environment. The bungalow has a common entrance and a common sitting room with a corridor leading to the five rooms. The kitchen in front but to the left of the compound serves all the house occupants.

Work activities

Unoma began her 14hrs working day at 6.05am. She washed her face and went across to the side of the house to ease herself. Thereafter, she brought out the dirty dishes and washed them. After washing the dishes, she swept round the compound and the kitchen completing these tasks at about 7.16am.

Thereafter, she went over to the kitchen and started to pound 'fufu'³⁵ that one of the other girls had prepared and per boiled. Completing the pounding, she made about 150 balls of about 30g each out of the pounded 'fufu' and wrapped these in transparent nylons. She then packed them into a big transparent nylon bag completing the task at 10.09am.

Unoma took her bath and got dressed. She had her breakfast of 'fufu' with a little soup and left the house carrying the wrapped balls of 'fufu' to hawk in the streets. She returned to the house at 6.30pm, stored the few balls remaining in the kitchen and picked up a 25litre gallon to collect water for the next day's 'fufu' preparation.

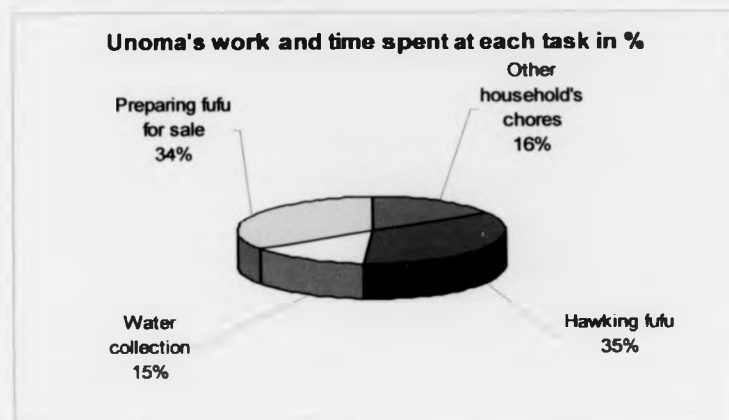
Carrying the gallon on her head, she made twelve (12) water collection trips to the nearby borehole in the company of two other friends. Her water collecting task ended at 7.43pm after collecting a total of 300litres of water.

Unoma thereafter assisted her older cousin with food preparation. Dinner was served to the household members at 8.30pm, while the clearing of plates and

³⁵ Dough made from cassava flour

pots ended at 9.30pm. She went to bed very tired at about 10.00pm. The pie chart in Figure 2 summaries her activities for that day.

Figure 2: Unoma's work and time spent at each task in percentage



2 Adekunle.

Adekunle was an eight year old boy at the time of this study. He is the third child of a broken marriage residing with his father and three other siblings. The family's income comes largely from his father's wages but was supplemented with the proceeds from the sale of fire wood and Adekunle's profits from the sale of packaged water.

The Setting

Adekunle's father shared an old brick house with six other tenants. The house is about 30m from the River Niger and at an estimated 150m from Necab's borehole. Adekunle's father occupied two (room and parlour) out of the sixteen rooms in the house and a common corridor separates the rooms into two parallel rows. Inside Adekunle's parlour, there is a TV set, a radio, tabletop refrigerator and a fan. He sleeps with his father and the other siblings in the adjoining room. When viewed from the river bank, the house appears to be built on a high table of land.

An old kitchen at the back of house serves the house occupants and a short distance away from it is the common but hardly used toilet.

Adekunle's work activities

Adekunle's working day started at 6.25am when he woke up to join the family's 10mins morning devotion. He spent another 10mins outside the house to ease himself and to rinse his mouth and face with water. Thereafter, he picked up a 10litre plastic gallon and walked to Necab to buy water. Adekunle carried the filled gallon home on his head and poured it into a black 100 litre plastic storage bucket with a lid. He made five water collection trips that ended at 7.32am.

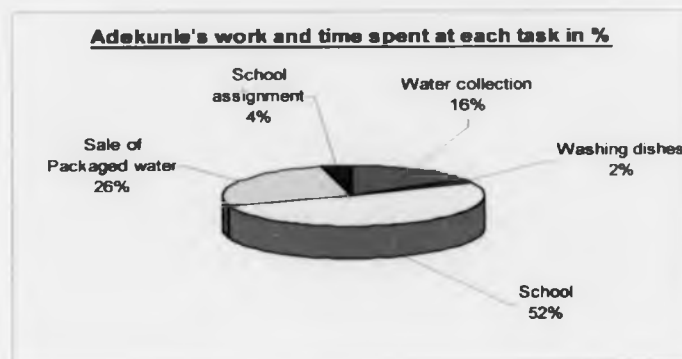
Back in the house, Adekunle washed the dirty dishes from last night's dinner and had his bath using part of the water he had collected from the borehole. He got dressed, had his breakfast and left for school at 8.05am. School closed at 2pm and Adekunle arrived back home at 3.07pm. Had a quick lunch that lasted for 8mins, picked up a small plastic bowl and hurried out to Butebe-butebe packaged water depot.

At the depot, Adekunle joined others and bought half bag of frozen 'pure water' (packaged water) for 35Naira. He placed the 10 sachets that makes up the half bag in his bowl and hurried out into the street heading in the general direction of the nearby market. He made four trips of about 35mins each to the depot collecting 10 sachets each time.

Adekunle sold a total of 40 sachets of packaged, the equivalence of two complete bags. Excluding the 35Naira he had on him initially, he had made an additional profit of 60Naira by selling each sachet of packaged water for 5Naira. Adekunle made his way back home at about 6.13pm chatting and calculating his sales with friends on the way.

At 6.20pm, he picked up his water gallon and went out to buy water from Necab. He spent the next 45mins collecting water and filling the 75litre water container near the door to their rooms. Adekunle had his dinner at 8.00pm and remained in the room after dinner to do his school's assignments. He fell asleep at about 9pm while trying to complete his school homework. The pie chart summarising his activities is presented as Figure 3.

Figure 3: Adekunle's work and time spent at each task in percentage



Data Summary

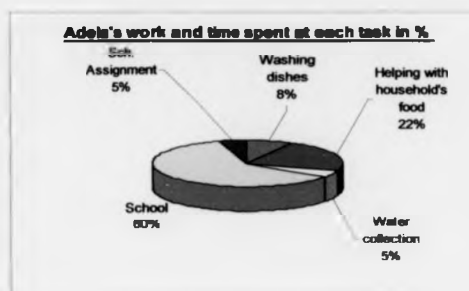
In order to facilitate easy comparisons, a summary of the activities of all the six participants is presented as Table 9. The time spent on each activity was calculated as a percentage of the child's total working hours on that day.

Table 9: A working day in the life of a child

Name	% Time	Vessel Size &	% Time	% Time	% Time	% Time
Age	water	H ₂ O Vol.	Packaged	water fetching &	School	Other
Gender	collection	Transported	water	packaged water		chores
Unoma,	Borehole	(25litre)	*Fufu			
9yrs	15%	300litres	(35%)	NA	NA	50%
Girl						
Ndidi, 13yrs	Borehole	(20litre)				
Girl	11%	160 litres	31%	42%	46%	12%
Adela, 11yrs	Yard Tap	(15litre)				
Girl	5%	105 litres	NA	NA	60%	30%
Chizea,	Borehole	(15litre)				
9yrs	9%	135 litres	35%	44%	42%	14%
Boy						
Musa, 11yrs	River	(15litre)	*Ibread			
Boy	16%	90 litres	(73%)	NA	NA	11%
Adekunle	Borehole	(10litre)				
8yrs,	16%	125 litres	26%	42%	52%	2%
Boy						

Field observation tagged 'a working day in the life of a child' provide evidence that children's water collection task is carried out along with other household's chores. Based on water service level, Adela provides an example of how time saving may prove beneficial for children.

Due to the installation of a yard tap in her compound, the task of water collection was made considerably easier and she spent the least time when compared to the other children, on water collection leaving her with enough time to play and complete her school assignments.



Combining water collection and hawking of packaged water after school hours appears to place considerable stress on children's time. Ndidi spent 42%, Chizea 44% and Adekunle 42% of their total working hours on these two activities alone. Chizea and Adekunle collected water in the morning and evening leaving little time for play and recreation. The two children, who were not attending school, spent 15% and 16% of their working hours collecting water outside the long hours spent in the streets hawking food items.

'Helping hand' activities has been described as 'non-hazardous domestic tasks undertaken by a child of any age as part of daily chores in their own family home, that do not interfere with any of the child's rights under international law, and that do not constitute economic activity' (International Labour Office 2004).

Nine years old Unoma, resides with her unmarried Auntie, does not attend school and apart from hawking food items in the streets, she hauled a total of 300litres of water, which amounts to 300kg weight of water on her head in one day. Eight years old Adekunle lives with his divorced father and attends school. He spent 42% of his working hours on water collection and in the sale of packaged drinking water and hauled a total of 125kg weight of water in addition to supplementing the family's income with the proceeds from his sale of packaged water. Six little children aged between eight transported a total of

915litres of water amounting to 915kg weight of water and thirteen years while apparently lending a 'helping hand' with household's water supply.

But according to the United Nations human right to water, children should not be 'prevented from enjoying their human rights due to the lack of adequate water in households or through the burden of collecting water'³⁶ (United Nations Economic and Social Council 2002).

Within the human rights framework, at what age and weight of water should the 'helping hand' activities of children in household's water provision, be regarded as a 'burden' and a denial of human right? The views of children on these issues are presented in chapter five, based on data from field interviews and focus group discussion sessions.

³⁶ (Section II, 16b).

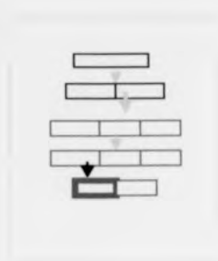
Chapter Four—Section Three

Guided Tour

Introduction

In this part of section three, I present the narrative account of a child's water collection activity based on data from a guided tour. The intention is to better understand the context and geographical terrain of their local area so as to provide a better understanding of water collection activity against the background of a 'non-hazardous' domestic task.

The descriptive account in this section, is based on field notes on a guided tour to the River Niger led by a six years old girl. She had agreed to take me on a guided tour when I met her earlier during the one week field observation at the river bank. She was so active fetching water from the river that I could not resist the temptation of recruiting her into the study.



My decision to recruit her for a guided tour rather than for interview or group discussion was based on her age. I felt she would probably give a better information in a relaxed tour than under formal interviewing or group discussion situations. I obtained the consent of her parents as well as that of the little girl before embarking on the trip. I also got her consent to take photographs, which I presented to her parents in the digital camera before printing them out.

The setting

Aisha lives with her parents, aunties and cousins in Otu-Ogwu right in the heart of Asaba town. Her compound comprises of three mud huts that are roofed partly with corrugated zinc sheets and thatched leaves. The huts are arranged in the form of a rough triangle with an open space between the huts where cooking and other activities is carried out. The compound is sited on the crest of a sharply rising ridge, about 10m high when approached from the sandy banks of the adjacent River Niger. From the edge of the last huts of mixed mud and rough bricks that typify the physical structures of 'Aisha's Otu-Ogwu', but without any clear geographical demarcation or boundary, is an entirely different 'Otu-Ogwu'. The latter stretches south eastwards along the banks of the River

Niger as far as the Five-Star Grand Hotel. In sharp contrast to Aisha's 'Otu-Ogwu', the latter is filled with the ostentatious palaces and castles of the town's bourgeoisies.

Photograph 12: Aisha's home and a view of the Grand Hotel



Standing inside Aisha's compound, the back of the prestigious Grand Hotel can be seen in its majestic grandeur, with the spiralling rafts meant for its collection of expensive motor boats and water scooters stretching from the river unto the sandy beach. As Stephens once noted, 'extremes of wealth and poverty now concentrate in towns and cities bringing the images of unsustainable wealth alongside those of unmet basic needs' (Stephens 2002).

Trip to the River

When our research team got to Aisha's house for the scheduled guided tour on the appointed day, the little girl was pouring water from the basin on her head into a larger one on the ground. Having completed the task, she immediately left the compound with the basin still on her head. While I spent some time discussing with her mother and explaining our mission to the other members of her household, Aisha walked into the compound with the same basin and poured the contents into one of the storage vessels lining one side of the cooking space. It was at this point that her mother called her and I asked if she was still willing to take us on a guided tour as previously arranged. Having reconfirmed her consent we set out for the River Niger.

Aisha led us out of her compound carrying the same basin (about 20 cubic litres) on her. The back of Aisha's compound presents a good view of the river. The River Niger lies at an estimated distance of about 150m from the back of

her compound. A hot sandy bank stretched for about 100m while the remaining 50m next to the river was made up of hard sun backed mud. The network of cracks running through its entire length makes walking over its hot rough surface on bare feet a very unpleasant experience.

Photograph 13: Aisha on the way to the river



With Aisha leading the way, we walked to the end of the crest of the ridge marking the natural boundary of her compound and the beginning of an estimated 10m descent to the sandy bank of the river. The little girl chose her foot holds carefully looking over her shoulder from time to time to make sure that we are following her example. Reaching the sandy bank below, she waited until we all joined her before she continued her journey across the hot sand and the dried mud on bare feet to get to the river.

Standing in the shallow part of the river with her basin still on her head, she used a small plastic bowl of about 2 cubic litres to scoop and pour the river water into the basin on her head.

Photograph 14: Aisha in the River Niger



When I asked why she did not put down the basin before filling it with water, she said it was not convenient for her to do so as she is incapable of lifting the

fully filled basin of water unto her head without assistance. This is however not surprising as it would probably weight about 20kg.

After completing the task of filling the basin with water, Aisha's traced her steps back across the beach to the base of the inclined ridge, climbed up choosing where to place her tiny feet carefully and spilling part of the water from the weaving basin on her head from time to time.

Photograph 15: Aisha returns home to complete another water collection trip



Finally she reached the top, entered her compound and walked in the general direction of the assorted water vessels lying around the compound. Standing in front of one, she tilted the basin forward and poured the contents into it.

With the empty basin still on her head, Aisha left the compound to repeat the trip to the river. While I stayed on in her compound for roughly 30mins jotting down notes and taking photographs, the little girl had made three more uninterrupted trips to the river to fetch water.

Chapter Five

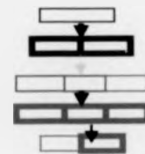
Results—Field Interviews and Focus Groups

Introduction

Fetching and carrying water in disadvantaged communities fills the 'access gap' between un-piped households and piped households with in-house water connections. As established from study results in chapter four, it involves a number of interrelated actions that include: picking up a water container and carrying it empty over a distance to the water source. Collect water with it at the source and carry it this time filled with water, over the same distance back to the house. The duration of the process, in terms of the number of water collection trips, as Aisha's case demonstrated, is determined by household's water requirement and the quantity of water transported per trip.

This chapter is divided into three sections. In Section one, I present children's perspective on their experiences in household's water provision, distribution and sale of water. In Section Two, I present their understanding of duty, rights and responsibilities, before presenting the health implications as 'viewed with the eyes of children' in Section Three.

The study findings in this chapter are based on the thematic content analysis of data from 112 individual interviews and three focus group discussion sessions with children. The first two focus group sessions were conducted during the pilot stage (Pilot study 2—highlighted blue in the photo in-set), while the individual interviews and third focus group session (highlighted in red) forms the main bulk of the data in this chapter.



The decision to include excerpts of field data in this chapter is based on the fact that very little exists on the views and experiences of children. Most studies on water and children, as Nicol put it 'do not take account of the information children possess and its effect on their relationship with their present water environments' (Nicol 1998). This thesis hopes to contribute to knowledge in this direction. Apart from short summaries at the end of each section, a detailed overview of overall study findings is presented as appendix 22.

Chapter Five—Section One

Children's perspectives on their experiences in household's water supply.

Introduction

This section of the chapter presents children's perspective on their experiences in household's water provision, distribution and sale. The section is divided into two parts and focuses on the first objective of this study: To describe children's involvement in the social organisation of household water supply, this time, based on data from pilot study 2, field interviews and focus group 3.

In the first part of this section, I present the general findings on children's perception of their roles and experiences on water collection based on pilot study 2 data. The pilot focused on children from two different socio-economic backgrounds. In the second part, I present the findings from individual interviews and group discussion involving essentially children from the two disadvantaged study communities. I also present study participant's accounts of their experiences in the sale of packaged drinking water before ending the section with a brief summary of the important findings.

Initial findings from Pilot Study 2

The Ogeah and Otu-Ogwu focus groups were formed based on the geographical locations of participants in Asaba. The Ogeah group is made up of children from the high/middle income low-density area. The Otu-Ogwu group engaged children from the low-income high-density area. The discussion starts from the activities of children in household's water collection and distribution to related health implications. The discussion guide and field notes are presented as Appendix 5a.



Children's activities in household's water provision

The results from the group sessions show that children's activities in water provision in Asaba relates to the type of water source. Water sources named by the Ogeah focus group include; the public network with in-house connections, self-supply boreholes, water tankers that supply household's storage tanks and fetching water from neighbours. In terms of physical accessibility, this reduces the distance that water has to be carried and usually takes less than five minutes in most cases. The task of fetching water only becomes marked when normal

supply is disrupted by public power outage and households resort to the use of stored water.

Photograph 16: The Ogeah and Otu-Ogwu focus groups



Ogeah focus group



Otu-Ogwu focus group

The situation was different for the Otu-Ogwu group. Household's water sources include; yard taps; water purchased from private boreholes, the nearby river Niger, and packaged drinking water purchased from local vendors. Several families usually share one-yard tap resulting in frequent damage due to fights, as people fail to maintain queues.

Water supply is intermittent and taps run for about four hours a day. Supply is further disrupted by local power cuts. When taps stops running, children walk an estimated distance of 150m uphill to buy water from a privately owned borehole. Children from families that cannot afford to buy water from the borehole walk about 100m down to the river Niger³⁷. Interestingly, the pilot study data suggest that Ogeah and Otu-Ogwu participants share the same attitude towards water fetching; some claim they enjoy it while others say they don't (Appendix 6).

Children's involvement in the sale of water (Reported Accounts)

Data on children's involvement in the sale of water from the Ogeah and Otu-Ogwu are reported accounts and not on child-based observation of actual activities. Though children act as borehole attendants, they reported that they are usually engaged in hawking locally packaged drinking water. Participants in the Ogeah group believe that water is a free gift of nature; therefore people should not be made to pay money in order to have access to it.

³⁷ The distances were estimated by visiting the nearest borehole to the community as well as the nearby River Niger.

The Otu-Ogwu children reported that they '*don't like paying for water*'. Their viewpoint was based on financial rather than conceptual perspective. Most families within this geographical area are poor and unable to continuously buy water from privately owned boreholes or local vendors. When yard taps stops running, they usually wait for them to start running again before fetching (in most cases) household's drinking water.

In addition, the Otu-Ogwu group perceive assisting parents with the income from the sale of packaged drinking water as one of the domestic roles of children. The Ogeah group, on the other hand, believed that hawking packaged drinking water is not a normal domestic chore for children and must be discouraged.

Health Implications

The pilot study data suggest that the reported health concerns are directly related to the different levels of children's involvement. While the Ogeah group complained about slippery grounds around water points and water contamination due to lack of regulation in borehole development and construction, the Otu-Ogwu group were specific in their reported health concerns. According to the latter group, household chores like fetching and carrying water results in headaches and neck sprains, stomach discomforts, cramps accompanied by diarrhoea, fevers, sun burns, bruised scalps and the risk of motor accidents while collecting water (Appendix 8).

Conclusion

Children's activity status and the resultant health implications in household's water provision in Asaba appear to vary with the types of water sources and the socio-economic status of the household's concerned. Some of the emergent questions from the pilot study include; what does '*like to fetch water*' mean to these children? What water duties do children consider appropriate? What do children consider their rights and duties in the sale of water? These emergent issues will be explored later in this thesis.

Summary of Findings from Pilot Study 2

The two focus discussion groups based on the geographical location and socio-economic status of children's household produced a number of interesting findings. The houses of children in the Ogeah focus group (high/middle income low density areas) are linked either by in-house connections to the public network or private borehole. Children's physical access to water in terms of distance to sources, reduces the distance water has to be carried—if it has to be carried at all.

The situation is different for in the Otu-Ogwu focus group (low income high density area). Several families share one-yard tap. Water supply is usually intermittent (a couple hours at a time) and service is further disrupted by local power cuts. During power cuts, children walk distances to either buy water from privately owned boreholes, or down to the river to fetch water.

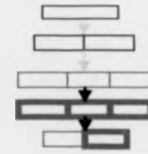
Interestingly, the pilot study data suggest that both the Ogeah and Otu-Ogwu focus groups share the same attitude towards the task of water collection. Some claim it was 'easy' and that they 'like' or 'enjoy' fetching water. Others say it was 'difficult' 'not easy' and that they 'don't like' or 'don't enjoy' the task of water collection.

On the issue of children's involvement in the sale of water, the Ogeah group believe that water is a 'free gift' of nature; therefore, people should not be made to pay money in order to have access to water. From their viewpoint, hawking of packaged drinking water is not a normal domestic chore for children and should be discouraged.

What was uppermost on the minds of the Otu-Ogwu group is the financial strain on household income because of buying water from local vendors. In addition, children's involvement in the sale of packaged was perceived as a normal domestic and 'helping hand' activity. Emergent questions from this pilot were carried over into the main study for further exploration.

Findings from the Main Study

The field interviews and focus group discussion session (red in the in-set photograph) were directed specifically at children from two disadvantaged communities—Cable-Point and Otu-Ogwu—and forms the bulk of the analytical data in this document.



Emergent questions raised by the pilot study were explored in detail using individual interviews and group discussion. The results provided useful insights into participant's individual and group assessments of the task of water collection and the sale of packaged drinking water. This section of the thesis gives specific attention to the reported experiences in relation to the task of water collection, distribution and sale.

Experiences in fetching and carrying household's water

The study participants reported around a wide range of issues that were linked to the social and health impacts, as well as their levels of involvement in household's water collection. While the reported social impacts appear to be based on subjective knowledge, the reported health impacts were founded on practical occurrences and clinical symptoms experienced following the completion the task.

General Findings

A number of participants while assessing the task of water collection described the process as 'easy', 'not difficult', 'not heavy' and a 'healthy exercise'. Others found it to be 'difficult', 'not easy', 'hard job', while one participant described it as 'hell'.

In the area of children's use and control of household's water, some participants reported 'feeling sad,' 'disappointed' and 'angry' with the way and manner the water they have collected for use in the house was, in their opinion, mismanaged thus revealing a feeling of helplessness and frustration. This standpoint was linked to what some participants described as the 'much suffering' involved in water collection.

Between the different age groups, older children (15-16yrs) as well as some 18yrs and above (that were included in the study) suggest that water collection

is too much of a burden to be placed on the shoulders of younger children (5-10yrs). However, children between 11-14yrs, from the standpoint of the older group (15-17yrs), that are physically fit and not experiencing any form of illness should be assigned the task of water collection.

Though children between the ages of 11-14yrs consider it appropriate that they should be assigned the task of water collection, they also expressed the view that in normal circumstances, no child should be made to fetch water as government is supposed to ensure the provision of water for every household via in-house connections. This has implications for children's right to water and the role of government to ensure equitable access to water.

Analysis of data from the individual interviews and group discussions show no significant gender difference in task assessment as well as between the children from Otu-Ogwu and Cable-Point communities. The following excerpts taken from field interviews and discussion highlight some of these issues.

Excerpt 1

- 100: I: Do you find fetching water an easy task?
101: R: It's easy
102: I: Why is it easy?
103: R: Because where I go to fetch water is very close by³⁸

Excerpt 2.

- 67: I: Is it easy for you to fetch water?
68: R: No
69: I: Why?
70: R: Because the bucket is too heavy³⁹

Specific Findings

Analysis of data from individual interviews and group discussions show that a number of inter-related factors that are involved in the water fetching process underpin participant's point of view on their experiences. These factors include, the type and size of water container, method of carrying water, distance to the water source, type of water source, time spent on the task and disruptions in local public power supply. In the remaining part of this section, the specific findings with regard to these variables are presented where relevant, across age group, gender, household type and communities.

³⁸ Document 'OtG7 7-10; Paragraphs 96-103

³⁹ Document 'OtG15 11-14; Paragraphs 67-70

Water container

Four major types of water containers, Jeri-can or gallon, bucket, basin and bowl were reportedly used for water collection in the two study communities. When participants were asked, they used the names 'gallon' 'rubber' and 'jerry can' interchangeably to refer to the popular container that was widely used for water collection⁴⁰. In this document, Jeri-can will be used in reference to it. It is manufactured in various sizes of 5, 10, 20, 25, 30 and 50litre capacities. The type and size of the water container determines the quantity of water that can be transported per water collection trip. Jerry can is the container of choice for most of the participants in this study because the plastic cover prevents loss of water during transportation which otherwise is not possible with ordinary buckets, basins and bowls.

The size of the water container is a significant factor in children's task assessment. Some participants complained about the weight of water they had to carry particularly in cases where the method of transportation is either on the head or by hand. Some amount of energy is required to lift the water vessel unto the head, wheelbarrow or pushcart even in cases where mechanical assistance was adopted.

Older children in the family are expected to carry bigger water containers when compared to younger siblings as they are perceived to be stronger on account of their age. Thus age plays an important role in the size of container and subsequently the quantity of water a child is supposed to carry. Some participants described the situation where children are made to carry more than they can bear in weight of water either as 'punishment' or 'bondage' and blamed such cases to situations where children live with non relatives.

For these reasons, there were calls particularly during group discussions for age restrictions, with regard to the size of container children of different ages should use for water collection. From the viewpoint of the participants;

- Five to seven years old children (5-7yrs), should not be made to fetch water.
- Eight to ten years (8-10yrs), should use 10litre containers to fetch water.

⁴⁰ For more details on the subject please refer to words and specific meanings in glossary of words and contextual meanings (Appendix 23)

- While eleven to fifteen years (11-15yrs) may use between 10 to 20 litre capacity containers to fetch water.
- Assuming that water will be carried on the head, no child should use any vessel of more than 20 litre capacity to carry water.

It was interesting to note that children between the ages of 16-17yrs were not included in the study participants grading. At that age and under 'normal' circumstances, the general understanding is that they would have stopped fetching water for household use.

No significant gender differences were reported in the type and size of container used for water collection. The analysis was further confounded by the use of mechanical assistance which tends to allow some of the children to transport water using large water vessels irrespective of gender. Children that used smaller vessels of between 10-15litres described the task 'as easy' when the source is close to their homes while those who transported water using vessels that are more than 20 litre capacity described the task of water collection as 'not easy'.

Method of carrying water

Three methods of carrying water were reported in this study—carrying water by hand using the vessel handle, on the head and the use of mechanical assistance such as wheelbarrows or pushcarts. Participants did not report on carrying water across the shoulder like the Mai-ruwas (water vendors) of Cable-Point. Out of the three reported methods, those that fetched water by adopting one form of mechanical assistance or the other appear to find the task much more pleasant than those who carry water on their heads or by hand.

Wheelbarrow or pushcart

Some of the participants reported that the use of a wheelbarrow or pushcart made the task of water collection easy. Analysis of individual interviews also reveals that most of the participants that used either a wheelbarrow or pushcart, reportedly transported more than 20litres of water per water collection trip. In addition, this reduced the number of water collection trips, as large volume of water was stored in a relatively short time when compared to carrying water either on the head or by hand. While carrying water with a wheelbarrow may be preferable to head and hand, it was however reported not to be a trouble free

option. The following is an excerpt from an interview. The discussion began from task assessment following the reported use of a pushcart for water collection.

Excerpt 3.

I: So, does that mean that fetching water is hard work?

R: No, it's not that hard.

I: Not that hard. So it is important that []

(Staring into the distance as if reliving a past experience. If he heard the interviewers statement he did not show any indication of it as he continued speaking)

R: Or the tyre is leaking (*referring to the pushcart*) and I have to carry the three (*referring to the Jeri-cans*). Then I will not be able to push the it as the two tyres will just be on the ground.

I: You mean they will be flat on the ground?

R: Yes. Then I will not be able to push it. It's usually a bitter struggle⁴¹

Head

Some of the participants reported carrying water on their heads, particularly in some parts of Otu-Ogwu where the uneven terrain may not permit the use of any form of mechanical assistance. In addition, those who fetched water with either basins or bowls carried water on their heads as the lack of handles will not enable them to transport it over an appreciable distance by hand.

Compared to those that adopted one form of mechanical assistance or the other, children that carried water on their heads used smaller sized water containers but some still complained that the water container was 'too heavy', apparently referring to the size and corresponding volume/weight of water carried in these vessels. Findings from interviews show that only Otu-Ogwu children reportedly carried over 20 litres of water on the head per water collection trip.

Hand

Some participants reported transporting water by holding the vessel handles. This apparently rules out basins and bowls, unless in-yard or in-compound distances. There was no direct reference to this method of water transportation as having made the task of water collection 'easy' but was perceived as

⁴¹ Document 'OtB10' ¹¹⁻¹⁴ Paragraphs 148-153

convenient for very short distances. Data analysis reveals that no participant in this category reported transporting more than 10litres per water collection trip.

Age groups

The methods adopted for transporting water from the findings in this study appear to be age related. Viewing the three reported methods of water transportation across age groups, participants within the 7-10yrs age group reportedly transported water by carrying it on their heads while only a handful reported carrying water by holding the vessel handles. Participants within the 11-14yrs age group adopted the use of one form of mechanical or the other in addition to carrying water on their heads. While the few older children who were included in this study, 11-15yrs, and the 18yrs and above, used mainly wheelbarrows.

Gender

Findings from this study reveal that boys and girls adopted the use of mechanical assistance as well as carry water on their heads. Study data also show that boys reportedly used large size water vessels (up to 30litre capacity) to fetch water thus transporting more volumes of water per water collection trip when compared to girls. This was mainly achieved with the adoption of one form of mechanical assistance or the other.

Community level

The geographical terrain of a community influences the method of water transportation. Between the two study communities, more children in Cable-Point reported the use of either wheelbarrows or pushcarts than children in Otu-Ogwu. The poor geographical terrain of Otu-Ogwu may have influenced the decision to adopt or not to adopt the use of mechanical assistance. Paradoxically, those that reportedly adopted the use of mechanical assistance in Otu-Ogwu were those residing either very close or next to the water points.

On one hand, Cable-Point boys transported and collected higher volumes of water from boreholes per day when compared to Otu-Ogwu boys. On the other hand, Otu-Ogwu girls transported higher volumes of water via large size water vessels (up to 25litres) carried on the head than Cable-Point girls and boys from both communities. The following excerpt describes the experience of a 12yrs old Otu-Ogwu girl who attempted to use a wheelbarrow to transport water. The

discussion progressed from the experience of injury while carrying out the task of water collection.

Excerpt 4

117: I: Where you fetch water, maybe at the borehole or public tap, have you ever been injured?

118: R: Yes, once I got injured at the borehole the day I used a wheelbarrow. So there was this place where they hire it for 1Naira. It was there that I tripped and fell and broke my gallon and the barrow also injured me

119: I: What did they do when you broke your gallon and got yourself injured?

120: R: When I got home my mother said the reason why she would not beat or scold me is because I was injured.

121: I: And what did they do about the injury?

122: R: Nothing. I on my own went to my uncle's place to show him the wounds. He then gave me money to go for treatment⁴²

Water collection trips

The reported experiences of participants in this study are based on the water collection trips that children had to undertake. They complained about the daily toil of water collection, repetitive water collection trips and time spent on the water collection task as some of the major factors that makes water collection an unpleasant and difficult task.

One water collection trip is the distance that a child walked from the house to the water source and back. Sometimes, more than one water collection trip is undertaken depending on household's water requirement, number and age distribution of the children involved.

It is therefore possible to fetch water say five times in the morning and five times in the evening. The child may then be said to have undertaken ten water collection trips on that day or two rounds of five trips per water collection round. This distinction is necessary in order to highlight the areas of repetitive water collection trips that appear to be uppermost in the minds of children.

⁴² Document OC320 11.14

Distance to the water source

Only estimates of the distance to water sources were adopted in this study as most of the participants reported on it as 'it's near', 'its near our yard', 'it's nearby', 'it's not far as such', 'it's far' etc. By asking some participants to show me the water sources they were referring to enabled me to estimate the distances to be less than 50m for cases where it was referred to as 'it's near' or 'nearby', less than 100m for 'it's not far' and over 100m for 'it's not far as such' and 'it's far' cases. These estimates are considered appropriate because the study was aimed at the perceived experiences of children and not to determine the 'facts' of their reported accounts.

Participants that described the water collection task as easy were mostly those that collected water from yard taps and from boreholes within their compounds. A number of those who had described the distances to boreholes as 'its near' or 'close by' also described the task as 'easy'. Participants that describe the distances they had to walk as 'it's far', 'its not so far as such' perceived water collection as 'not easy' in their task assessment. These findings suggest that despite the relatively short distances generally reported in this study, distance to the water source still had an influence on their perceived experiences. In such situations, having the water sources as close to their homes as possible, proved most pleasant from the standpoint of children.

Frequency

The frequency of performing the task of water collection refers to the situation and the number of times the task was undertaken. As examples, on a daily basis—everyday, on alternating days, once a week, twice a week, etc refers to the different frequencies of carrying out the task. Study findings reveal that participants that fetched and carried water only once a week, twice a week, thrice a week or on alternating days described the task as 'easy'. Those amongst them who described it as 'not easy' are those who either carried water on their heads or those who had high number of water collection trips.

Those who had to undertake water collection on daily basis described the task of water collection as 'not easy' or difficult. Participants that reported to have fetched and carried water everyday, but described the task as 'easy' are those who either undertake very small number of water collection trips, used smaller sized vessels (10litres) or adopted the use of mechanical assistance to transport

water. Data from the study also reveal that most of the water collection activity was reported to take place in the mornings and evenings within the two study communities. The following excerpt, taking from a transcribed interview describes the participant's response to the question on the appropriateness of children fetching water for adults:

Excerpt 5

225: I: Is it right for children to be the ones to fetch water for adults to use?

226: R: Yes, but it should not be every day that they have to do the collection. There should be intervals in between for example if they fetch water today in the morning they should rest. Then the evening of the following day before they fetch water again.

227: I: Why should it be children who should fetch water and adults don't?

228: R: Because adults are older than we are and you can not sit around while adults carry bucket to go and fetch water when you are around.⁴³

Findings across age

Study findings across age show that, the 11-14yrs age group reported more water collection trips and activity in water fetching and bearing. The 7-10 age group reported the task of water collection mostly as 'easy' as most embarked on water collection on alternating days or after long intervals of rest between tasks. The 15-17 age group and 18yrs and above that participated in this study only visited yard boreholes and 'close by' or 'across the fence' boreholes making between one and two water collection trips.

Findings across gender and communities

Across gender and communities, Cable-Point boys reported less than ten (10) water collection trips per round and recorded between one and two rounds of water collection per day to boreholes. Cable-Point girls reported not more than five water collection trips per round and between one and three rounds per day to boreholes.

Otu-Ogwu boys reported up to ten (10) water collection trips per round of household's water collection but mostly one round of water collection trip per day to yard taps and boreholes. Otu-Ogwu girls reported up to twenty (20) water collection trips per round but mostly one round of water collection per day to boreholes or yard taps.

⁴³ Document OG21 11-14

The participants from Cable-Point, particularly the boys appear to undertake more water collection rounds per day to borehole sources than their Otu-Ogwu counterparts. This as data from the earlier field observation revealed may be attributed to Otu-Ogwu children's visits to yard taps and the river for supplementary water collection activities, while religio-cultural restrictions may to some extent account for the low number of Cable-Point girls engaged in water collection.

Most of the participants from other areas of Asaba that visited multiple close distance sources— public taps, yard taps, and boreholes. When compared to the participants from Cable-Point and Otu-Ogwu, appear to find the task of water collection much more pleasant—describing the task of water collection as 'easy' and the distances to the sources as 'it's near'.

Nature and Size of Household

The children in this study were mostly those that were actively involved in household water collection. Some were recruited directly from the water points while carrying out the task of water collection while others were recruited from schools and streets.

Some reported that not just them, but other members of the household were also involved in water collection. These other members may be other siblings, aunties, mothers and sometimes fathers. However, there were reported cases of children who are either charged with the duty or had to undertake the task of water collection without the assistance of other household members.

Results from the study reveal that the participation of household members and the size of the household appear to influence the children's assessment of the task of water collection. Participants whose family members join them in water collection reported that the task was 'easy', regardless of family or household size. Thus household or family member's participation appears to positively influence children's task assessment.

Participants that reported the task of water collection as 'not easy' are those who had to undertake the task of water collection without the help of other household members and in these cases, the family or household size was reported as five or more members. Thus household size appear to influence the children's task

assessment in situations where other household members did not participate in water collection

Findings from the study further show those participants who reported the task as 'easy' without the help of other household members are noticeable cases where the family size was reportedly less than five members. Thus other household member's participation in water collection and a small family size positively influence the children's assessment of the water collection task, while non-participation of other household members and a large household or family size negatively influence children's assessments of the task of water collection.

The reported cases of the non-participation of other family members in this study may be attributed to four major factors: household members age distribution, the division of labour within the household and make-up of the household.

Age distribution

Household member's age distribution play a vital role in task assignment and in the decision on whether or not others should assist those charged with the task of water collection. Family members who are regarded as too young may not join the older children to fetch water, while children who are considered 'too old' to fetch water are also exempted from the duty of water collection. The 'transition' age in which a child is considered too old to continue fetching water for households varies from household to household. In some households, this 'transition' takes place as early as 15yrs while in others it may be delayed to 20yrs or more.

Some participants thus reported 'too young', 'not old enough', 'can't carry bucket' as reasons for the non-participation of younger family siblings in households water collection. Others reported 'because they are older than me', 'because they are older' as reasons for older family siblings non-participation in household's water collection.

Division of labour

Another factor that influences household member's non participation in water collection is the division of labour within households. The duty of water collection may be assigned to a particular member irrespective of gender. A lower age limit which varies between households may be taken into

consideration in task assignment; however the upper limit is dependent not just on age, but on other factors such as adult-child ratio and age distribution.

Household's make-up

Household's make-up, particularly the adult-child ratio was reported by participants as one of the factors that determine whether or not other household members will participate in water collection. Families with only one child or old families where all other older children have left the house, according to participants, account for some of the cases where a child had to undertake the task of water collection without the help of the other household members.

In other situations, the oldest child in a young family may be the only one considered 'eligible' to fetch and carry water. In such cases, the younger sibling may be asked to undertake home bound' duties while the older child may take up tasks that are undertaken in the public domain. The following is an excerpt taking from an interview with an eight years old Otu-Ogwu girl:

Excerpt 6

109: I: So you are the one collecting water. What of your younger ones? Do they fetch water?

110: R: No. My younger brother looks after the little one, after collecting water; I take over the care of the little one.

111: I: So he does not do any other work except looking after the little one?

112: R: Yes ⁴⁴

Participants reported that other family members may avoid the task of water collection due to the 'perceived' difficulties involved in water collection. In some cases, these other household members may prefer and opt for other tasks thus leaving just one member to fetch and carry water for household's use.

The decision to undertake the task of water collection without the help of other household members may also be personal or voluntary and not necessarily unavoidable. An eighteen-year-old participant reported that she does not enlist the help of her younger ones because she wants to make enough impact so that when she leaves the house, her younger ones will miss and fondly remember her for those services.

⁴⁴ Document OG2 7.10

Across age group

Results from the study show that across age groups the 7-10yrs age group collected water mostly with the participation of other household members and reported that they find the task of water collection easy. Those within this group that did collect water without the participation of other household members were either due to the division of labour within a very young family; the other siblings were too young; or they happen to be an only child or the only child residing in a household of adults.

The 11-14yrs age group appear to have the assistance, even if occasional, of younger siblings in collecting water for households. Those who had to collect water for households without the assistance of other members were reportedly due to (a) the division of labour within that household, (b) the younger siblings are too young thus unable to lift a bucket filled with water (c) other members are regarded as too old to embark on water collection for household use.

Those of the 15-17yrs and some 18yrs and above that were reported as being involved in water collection without the assistance from younger family members are according to the reported accounts;

- (a). As a result of division of labour particularly in older households without younger members.
- (b). Those not living with their parents but with either other family or non-family members and,
- (c). Those who for personal reasons continue to fetch and carry water for other members of the household.

Study findings also show that among the 7-10yrs age group, girls reported finding the task of water collection 'easy', while the boys did not report finding the task 'easy' without the participation of other family members. No significant difference in the reported accounts was recorded between the two study communities in relation to participation or non-participation and family size.

Experiences in the sale and distribution of Water

From the reported accounts of participants in this study, children are actively involved in the sale of water at different water points within the two study communities by acting mostly as part-time borehole attendants at water points owned either by their parents, friends or neighbours. Children are also reportedly involved in the sale of packaged water by hawking small quantities in streets and local markets.

Water Vending Points

Participants from the two study communities reported that households purchased water from vendors that own water boreholes and yard taps. Exceptions are (1) households with enough financial means to drill private water points, (2) relations of private borehole owners—that permit them to fetch water at no charge and (3) cases where landlords drill water points and authorise their tenants to fetch water free of charge.

Across communities, participants reported that Cable-Point residents without the means to drill and own private water sources, that are not related or friendly with those that own water sources, buy all their drinking water from vendors. Water used for other domestic activities may be obtained from these sources, though individual households depending on its economic status supplement the quantity purchased with river water.

Otu-Ogwu residents without individual water source, according to the reported accounts of participants, buy drinking water from yard-taps and boreholes owners. Those who are either related or friends of owners of these sources may fetch water without charges.

From the reported accounts of participants recruited from other areas of Asaba, apart from buying water from private borehole sources, households had free access to public taps as well as neighbour's yard taps that are linked to the public network system. Whereas, households within the two study communities lack access to public taps.

Sale of packaged drinking water

Packaged water is popularly known as 'pure water' in Asaba as in other parts of the State⁴⁵. The participants in this study therefore referred to it as 'pure water.' In this section of the document, references to packaged water will occasionally where necessary, be documented as 'pure water' to maintain the original phrase used by participants.

Some participants reported that they were involved in the sale and distribution of 'pure water' by collecting sachets of packaged water from depots and hawking these in the streets and local markets. A number of motivating factors were reported. Some go into the business of hawking packaged water in order to meet educational requirements such as school fees, school bags, sandals etc. Others reported that they were enticed into hawking packaged water in order to make additional money to support their families. Still others reported that they hawk packaged water purely for personal gains. The last group give the profit made from the sale of packaged water to their mothers to purchase personal items or gifts for them.

When asked if it was proper for parents to allow children to hawk pure water in the streets, some participants believe it is proper because it is perceived as an opportunity to make some money on the side to support their education. It was also reported as a training process that will expose the child to 'learn about life'.

However, some participants that are involved in the sale of packaged did not share these views. It was reported that some of them were compelled, against their wishes, to hawk packaged water in the streets by their parents. From the standpoint of these children, street hawking is an improper practice and should be discouraged.

According to them, street hawking even on part-time basis affect children's educational performance by not leaving them with enough time to complete their school assignments. They reported that it exposes them to the risk of child theft and girls to sexual harassments, which in extreme cases may result in rape.

Across age groups, participants that reported their involvement in the sale and distribution of packaged water are limited to the 7-10yrs and 11-14yrs age

⁴⁵ See words and specific contextual meaning in Appendix 23

groups. No participant in the 15-17yrs age group and above reported involvement in hawking pure water. From gender perspective, boys and girls reported that they are actively involved in the sale of packaged drinking water.

Across communities, study findings show that only one participant, reported her involvement in the sale of packaged water in Cable-Point, while a good number of reports of involvement in the sale of packaged water were recorded among the Otu-Ogwu participants. There were also reports on the sale of packaged water among participants recruited from other areas of Asaba. Overall, Otu-Ogwu participants recorded the highest cases of involvement in the sale of packaged drinking water.

Household's water access and children's activity in the sale of packaged water

Within the two study communities, ownership of yard taps and borehole holds immense advantages for children in terms of the labour and time involved in water collection. The disadvantage being the need to act as part time attendant—to collect money from those fetching water—at these water points.

Findings from this study show that participants viewpoint on water commodification expressed in terms of 'liking' or 'not liking' to pay for water did not influence their reported participation in the sale of packaged drinking water. Data results however demonstrate a relationship between ownership of water sources and children's involvement in the sale of packaged water. The results show that participants that reported their involvement in the sale of 'pure water' are from household's without direct access to water suggesting that ownership of water sources, may be a factor in the decision to engage or not to engage in sale of packaged drinking water

Since ownership of a water point is dependent on the socio-economic status of the household, it may be argued that children from such households may not have the economic incentive to engage in the sale of packaged water. From the reported accounts of children, household's economic status may have influenced the decision whether or not to engage in the sale of packaged drinking water. Participants reported that their involvement in hawking package water is to either support their family or to keep them in school by helping to meet the financial costs of education. Paradoxically, some reported that their

involvement in the sale of packaged water affected their academic performance in school accounting for some cases of school dropouts. The following are excerpts from individual interviews, the first with a 10-year-old boy and the second with a 10-year-old girl. The transcribed interviews were conducted in Ibo language.

Excerpt 7

87: I: Why do you sell 'pure water'?

88: R: So that 'they'⁴⁶ can have the money to pay my school fees. When 'they' give me money I will then add the profit from the sales to make up the fees.

89: I: So you use it to support your parents?

90: R: Yes⁴⁷

Excerpt 8

105: I: What happens to the profit from the sales?

106: R: I give it to my mother

107: I: What does she do with it?

108: R: She uses it to buy food for the house

109: I: If you don't make enough profit won't she still buy food for the house?

110: R: She will

111: I: Why do you sell water?

112: R: We sell water so that they can use it to pay our school fees

113: I: If you don't make enough profit, they won't cook for you and they won't pay your school fees?

114: R: They will cook for us but they won't pay our school fees

115: I: So you sell water to put money aside for those reasons?

116: R: Yes⁴⁸

⁴⁶ See words and specific contextual meanings (Appendix 23)

⁴⁷ Document OB7⁹⁻¹⁰

⁴⁸ Document OG15⁷⁻¹⁰

Cost of water and Power supply

The impact of power supply on the price of water as well as children's water collection activities is one of the surprising findings in this study. Apart from the River Niger, other water sources in the two study communities are powered by electricity that is supplied through the public power network. As of the time of this study, all the boreholes in Cable-Point and Otu-Ogwu communities are all connected to the public power network through electrical wirings that linked the compounds housing them. During power outages, residents who can afford standby generators turn to these for power supply. Because of the frequent and sometimes prolonged power outages, businesses that require constant supply of power purchase standby generators.

The Delta State Urban Water Board reservoir supplies water to all yard taps in Otu-Ogwu. The pumping station located in the board's premises is connected to the public power network. Hence yard taps are completely under the control of the board's water pump that relies entirely on the public power supply. Having standby generators in compounds housing these yard taps will make no functional difference in water supply during public power cuts. Consequently, public power outage would mean the complete transfer of community's water supply from yard taps to borehole owners with standby generators.

Power cuts are frequent and unpredictable sometimes lasting for hours and power outages may continue for weeks or months before normal supply is restored in these disadvantaged communities. During power outages, borehole owners with standby generators use their generators to power their pumps, thus ensuring continuous supply of water. Those without standby generators either wait for normal supply to be restored or resort to the use of water stored temporarily in their tanks. Yard taps, according to the reported accounts of participants, stops running during power outages.

Comparatively, while functioning on public power source, boreholes in Cable-Point charge more for the same litre of water than in Otu-Ogwu community. During power outages, an additional cost is added across all price ranges. According to the reports of participants, the increase is due to the additional cost of fuel to run generators. Those who cannot afford these added costs will have to turn either to water stored in their homes (usually in metal drums or large

plastic drums known to some as 'buta') while waiting for power supply to be restored or to the river for their supply of water. Participants recruited from other areas of Asaba report that households sometimes pay money to well owners to fetch water during power outages. In other to extend the use of the water stored in households, children's access and use of water is restricted during power outages. The following excerpts highlight some of these issues.

Excerpt 9

177: I: I can see that you live close to the river. Do you go to the river?

178: R: Yes

179: I: What do you go there to do?

180: R: I go there when there is power outage and there is no where to fetch water from except our buta⁴⁹, my mother will ask us to go to the river to wash clothes and the dishes⁵⁰

Excerpt 10

69: I: Are you allowed to use water the way you want?

70: R: No O.

71: I: Why?

72: R: Because, because when the water stops to be rushing they will shout on me that I want to use the water to finish

73: I: So the water stops to rush?

74: R: Yes

75: I: Why does it stop to rush?

76: R: When NEPA⁵¹ take the light, then it may stop to rush⁵²

Excerpt 11

87: I: But does Obajama sell at different rates when there is public power supply and when there is power failure?

288: R: He sells everyday, whether there is public power supply or not

289: I: Does he charge the same rates or when there is power supply he charges 10Naira but when there is no power supply he charges 15Naira?

290: R: When there is no public power supply he charges 2 for 5Naira but when there is public power supply he charges 2, 2Naira.⁵³

⁴⁹ This 75litre cylindrical plastic vessel comes mostly in black with an elephant engraved on it. It is used mostly for water storage and may be placed either inside or outside the house depending on the availability of household's living space.

⁵⁰ Document OG21 11-14

⁵¹ NEPA means National Electric Power Authority. The body charged with the supply and maintenance electricity in Nigeria

⁵² Document OtB5 ¹¹⁻¹⁴

⁵³ Document OG11 ⁷⁻¹⁰

Excerpt 12

181: I: Do you have any advice for us concerning water? Anything you will wish to tell us?

182: R: Yes. I will like to tell you. Please aunty, can you repeat that question again, I don't understand it fully.

183: I: I said, do you have any advice for us concerning water, for instance the situation where public taps are not functional or other things?

184: R: I will be happy if they can provide us with water so that we don't have to go buying from private individuals because they keep reviewing their prices upwards all the time.

Apart from the general increase in the price of water, disruptions in normal power supply has other implications for the activities of children in household water collection. One of these other implications is the general increase in the population of children involved in water fetching as well as an increase in the distances covered to find functional water sources and/or more water collection trips to the River Niger to fetch water. Children's trips to unfamiliar water sources also increase their risk of injury.

Excerpt 13

155: I: Have you ever been injured while carrying out your water collection task?

156: R: I have been injured

157: I: How did it happen?

158: R: There was this day when there was general power outage, I was collecting water for somebody, I did not realize that there was a stone in my path. I hit my leg against the stone, fell down and got injured⁵⁴

⁵⁴ Document OG22 11-14

Data Summary

Participants in this study reported around a wide range of social and health experiences that were based either on children's subjective individual task assessments or the physical and symptomatic health perceptions associated with the task of water collection.

As in Pilot Study 2, some participants found the task not challenging while others found it physically challenging because of what they described as the 'much suffering' involved in water collection. While they regarded household's water collection as 'child work' they however blamed government for failing to ensure equitable access to water by providing water for every household via in-house connection as 'no child', in their viewpoint, 'should be made to fetch water'. This has implications for children's right to water and the role of government (United Nations Economic and Social Council 2002).

Children's standpoints on their experiences appear to be linked to a number of inter-related factors that are involved in the water collection process. These include the type and size of water container used for water collection; the distance to the water source; the method adopted for water transportation; the type of water source or service level; time spent on the task in terms of the number of water collection trips and whether or not other household members participate in the task of water collection.

From the reported accounts, children are actively involved in the sale of water either as part-time borehole attendants or by hawking small quantities of packaged water in streets and local markets. A number of factors ranging from meeting educational requirements, family support, to hawking packaged water purely for personal gains were reported as the motivating factors for children's active involvement.

However, the most surprising study finding is the impact of disruptions in local public power supply on the price of water purchased from vendors and its relationship with children's activity status in water collection. During power outages, the cost of water rises appreciably in the two study communities.

Chapter Five—Section Two

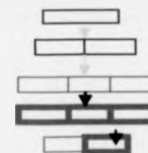
Children' understanding of their duty, rights and responsibilities

Introduction

The preceding section presented the reported accounts of children's activities as they fetch and carry water for households. Despite their reported experiences, study participants consider their role in household water collection as appropriate. In their understanding, 'children cannot sit around doing nothing' while adults fetch water for them to use.

Water collection and bearing is perceived as 'child work' and the responsibility for ensuring continuous supply of water to households is viewed as a 'helping hand' activity. In their understanding, water collection is a desirable social activity embedded within the concept of the 'good child'. On the issue of rights, fetching and carrying household's water, from the perspective of children, confers the child the right to access water.

This section is divided into three parts and focuses on the third objective of this study: To explore children's understanding of their rights and responsibilities vis-à-vis water collection distribution and use, based on data from Field interviews and Focus group 3.



In the first part of this section, I try to build up the links between 'like fetching water', 'helping hand' and 'child work' on one hand and the relationship between 'enjoy fetching water' and 'inherited' social obligation on the other.

In the second part, I explore the concepts of 'obligatory duty' and 'labour payments' as understood by children in their water environments as well as the issues of 'vertical' and 'horizontal' claim rights to household's water.

In the last part of this section, I explore children's understanding of the commodification of water and how it affects their right to household's water, before ending with a short summary of important study findings.

1. Children's views on the task of water collection

The emergent questions from the pilot were explored one after the other to gain an insight into what children meant by 'like fetching water' and 'enjoy fetching water'.

Majority of children in this study reportedly 'like' fetching water because it is the duty and responsibility of children. Water collection as 'child work' is perceived, firstly, as lending a 'helping hand' with household's domestic chore and secondly, as helping to meet household's water needs.

From their viewpoint, water collection is a necessary training that children in disadvantaged communities have to undergo. The idea of work was thus internalised early in the lives of these children and in their 'world of water' water fetching is perceived as necessary for the development of personal coping skills. In addition, the responsibility for water collection provide children the opportunity to 'learn how to do things' and is considered as an essential part of a child's upbringing.

Excerpt 14

49: I: Do you like fetching water?

50: R: Yes

51: I: Why do you like fetching water?

52: R: I like fetching water because its my duty in the house⁵⁵

Excerpt 15

28: I: Do you like fetching water?

29: R: Yes.

30: I: Why?

31: (4)

32: R: Because, I went to fetch it so that when maybe when I gets to my husband's house it will not be so hard for me to do and when I want to do things by then.⁵⁶

While 'like fetching water' in this sense may be plausibly linked to 'child work' and 'helping hand' activities, the explanations that participants proffered for 'liking to fetch water' did not disclose whether or not children find the task of water collection pleasant. This becomes particularly important as some children reported that they 'don't like fetching water' because of their experiences while

⁵⁵ Document OB13

⁵⁶ Document CG12 ¹⁵⁻¹⁷

carrying out the task. According to this second group of children, they 'don't like fetching water' because 'it's a hard job', other family members don't participate and the feeling of weakness and exhaustion that is associated with task. This group of children clearly do not find the task of water collection pleasant.

To gain a better insight into children's understanding of the duty of water collection, participants were asked if they enjoy fetching water—another emergent question from the Pilot Study 2. The question was aimed at finding out if the participants 'experience joy in' or 'receive pleasure' from the task of water collection. The responses provided a clearer picture of how children understand their water collection duty.

From the perspective of the children from the two study communities, water fetching is an act or course of action that is exacted of children by social custom. In their understanding, children have to 'like' or 'enjoy' the task of water collection because it was a social obligation and custom that was handed down to them. As children, they do not have a choice in the matter. The following excerpts from transcribed interviews and focus group discussion express children's perspective in their own words. The style of reporting in excerpt 17 was changed because of the multiple respondents involved in the group discussion.

Excerpt 16

34: I: Do you like fetching water?

35: R: Is it not that I like fetching water but it's what I have to do. That is my duty at home⁵⁷

Excerpt 17

534: Innocent: But it has already been there. We came and we met it we have to take it like that []

535: Jane: When I stand I feel pain []⁵⁸

536: Innocent: It's just like somebody coming to say 'why is this earth, this heaven without pillar?'

537: Sammy: Yes

538: Innocent: So you cannot ask such questions so it's my right to go and fetch water it's normal thing that I use to do at home.⁵⁹

⁵⁷ Document CB17 15-17

⁵⁸ [.....] indicate that the speaker was interrupted by another speaker while () represents a pause in the sentence.

⁵⁹ Document: Focus group 3

2. Children's understanding of the appropriateness of their role

To explore the participant's viewpoint on the appropriateness of this social role children play in household water collection, the following question was presented to the them; Is it proper for children to fetch water for adults to use in the house? Majority of the children in this study consider their role as appropriate.

Out of the eighty children from the two study communities that participated in this study (32 were recruited from outside the study communities), sixty-eight reported that their role was appropriate; only six participants reported that it was not appropriate while six other participants were either not asked the question or did not give a response to the question.

Water collection and bearing, as a duty and responsibility, is perceived as 'child work' in these disadvantaged communities, a necessary training for children. Three issues were uppermost in the minds of children that are actively involved in water collection. These were the issues of (1) duty to the family; (2) helping to meet household's water needs; (3) the generational issue of age in relation to duty and rights to household water

Duty to the family

From the standpoint of children, fetching and carrying households water is the duty and social role that 'good children' are expected to perform. Thus, children relate the responsibility for water collection with the notion of the 'good child'. Besides, they believe that adults have had their share of water collection when they too were children. Children's 'obligatory duty' of fetching water for households, was perceived by study participants as a way of showing respect as well as a demonstration of their obedience and loyalty to adults. It was therefore considered rude and inappropriate, in their understanding, for children to be seen 'sitting around' while adults carry out the task of water collection.

From the standpoint of study participants, children in un-piped households are expected to help in meeting the water needs of households by fetching and carrying water. This is particularly important in disadvantaged communities where households had to buy water from water vending locations some distance away from their homes. In their understanding, since children do not earn money and adults provide the money to buy water, it is only appropriate as labour payments, to take up the responsibility for water collection.

Excerpt 18

65: I: Is it proper for children to fetch water for adults to use in the house?

66: R: Yes it's proper for children to do so

67: I: Why is it proper?

68: R: Because it's child work⁶⁰

Excerpt 19

121: I: Do you think it is right for children to fetch the water that adults use in the house?

122: R: It is good, because you can't stay in the house and wait for the adults to go and fetch water for you to use.

123: I: So the law says that children must be the ones to fetch water for adults?

124: R: No. There is no such law but it is only right.⁶¹

Excerpt 20

151: I: But you don't know why children should be doing the water collection?

152: R: I do

153: I: Please tell me

154: R: Because we don't work to earn money⁶²

Children's 'powerlessness'

Study participants that felt the role of children play in household's water collection was inappropriate hinged their argument interestingly on generational and economic factors as well. From their standpoint, adults are older and stronger thus better built physically to withstand the stress of water collection. In addition, adult's power over water collected and stored by children within the house makes household's water collection inappropriate as the sole responsibility of children.

In their view, children should have equal, if not total, control over the water they collected rather than the existing situation where children's access to household water are sometimes restricted while adults who did not fetch water continue to enjoy an unrestricted access. The role of children in fetching and collecting water for households is also considered inappropriate from an economic perspective, as buying water from the vending locations constitutes serious loss of family income.

Duty to Non-Family Members

Interestingly, participant's viewpoint on the issue of duty and appropriateness of the task of fetching water was very different when applied to non-family

⁶⁰ Document OG25 ¹¹⁻¹⁴

⁶¹ Document CB 6 ¹¹⁻¹⁴

⁶² Document OB5 ⁷⁻¹⁰

members. In their understanding, children are neither obligated nor duty bound to fetch water for non-family members. In children's 'world of water', social 'family bonds' forms the basis for the 'obligatory duty' of water collection. It is left to the child involved whether or not to fetch water for non-family or non-household members.

Excerpt 21

135: I: Do you think it is right for you to be the one to fetch the water for other household members to use?

136: R: No

137: I: Why is it not right?

138: R: Why I think it is not right is because they are not my blood relations⁶³

Age, duty and children's claim rights to household's water.

Generational issues influence children's right to household's water. Findings from the reported accounts of participants suggest that there is an age related 'transfer of responsibility' for water collection. Children that have attained this 'transitional age' are automatically accorded the 'right of access' to household's water as those accorded adult household members without their further participation in household's water collection.

This 'access right to water' extends to the water sources if and when, they decide to fetch water. Adults and children that have attained the 'transitional age' are not supposed to queue for water behind younger children. Children for their part are supposed to respect them by giving up their turn to fetch water. Thus, children spend comparatively longer 'waiting times' when members of this group converge at a water source (especially during power outages).

Excerpt 22

147: I: Have you ever met an adult at the borehole?

148: R: Yes

149: I: Would you allow that adult to fetch water before you or is it that s/he may push you aside and collect water first?

150: R: I will permit the adult to fetch first

151: I: And why will you do that?

152: R: Because the person is older than I am⁶⁴

⁶³ Document OB11 11-14

⁶⁴ Document OtG10 11-14

Excerpt 23

155: I: Why won't you agree?

156: R: Because am the one that first come you now come and shouted on me.

157: I: But if the adult says please, will you allow him to fetch?

158: R: Yes

159: I: Why?

160: R: Because he is adult⁶⁵

Transitional Age (Generational responsibility transfer)

Children within a certain age range are considered too old to fetch water for household's domestic use—age related transfer of responsibility. In this study, this age range is referred to as the 'transition age.' This transitional age may be attained long before a child is 18yrs and varies between households and between communities (Under the Nigerian constitution, 18yrs and above are regarded as adults). In some households, it may take place as early as the age of 15yrs and for others, children may continue fetching water well past the age of 18yrs.

Factors that influence the attainment of the 'transitional age' include: 1. the number of children and the age distribution of those considered 'eligible' to carry out the task of water collection. Interestingly, the lower age limit for a child to take up the duty of water collection varies between households and between communities.

On one hand, a child's attainment of the 'transition' from water collection duty may be delayed when younger household members are considered either as too young or no younger household member is available to take up the task. In these cases, the task of water collection may continue well past the age of 18yrs.

On the other hand, the attainment of the age of transition may take place as early as 15yrs in households with a good number of younger household members that are considered old enough to take up the task of water collection. The following excerpts, one from an interview with a 16yrs old girl and the other from a focus group discussion involving participants aged between 13 and 17yrs highlight these issues. That segment of the group discussion centred

⁶⁵ Document OtG11 11-14

around the issue of the 'age of transition', when children stopped fetching water and why.

Excerpt 24

27: I: When you were younger, did you fetch water?

28: R: Yes

29: I: Why did you stop?

30: R: I stopped because my junior ones are grown up to fetch water in house⁶⁶

Excerpt 25

344: Sunny: Yes they stopped fetching []

345: Moderator: what age do you think it's []

346: Moderator: Ehen, what age did they stop []

347: Innocent: They stopped because they think they are like too big []

348: Eddy: When they have brothers and sisters

349: Lade: Why would, why would an 18 year old or a seventeen year girl []

350: Eddy: That has younger ones at home

351: Lade: ..start fetching water that people will be looking at him or her []

352: Innocent: You know, you must see this, is not that []

353: Lade: ..outside and he has the younger brother that can do it for him or her so she'll send him

354: Innocent: Is not that an 18 years old cannot fetch water []

355: Moderator: Yes

356: Innocent: ..but it's in the sense that you have junior ones at home what's the essence of you going. There many 18yrs people doing it []

357: Eddy: more than 18

358: Innocent: ..and there are even some 20, twenty something that are still fetching they don't have people under them that can fetch water, they are still going. But whereby you have junior ones, you don't even care whether they will refuse, some will not refuse

359: Moderator: some will refuse?

360: Innocent: Ha, when they talk, you say in those days when I was doing it, you were too small now, now it's your turn to do it

⁶⁶ Document OG26 15-17

Household's water consumption /use and children's rights

With regard to children's right to household's water in terms of consumption and use, study findings revealed two types of rights, an age related 'vertical claim right' and a 'horizontal claim right'.

Vertical Claim right (Adult-child relationship)

An age related vertical claim right applies in the relationship between adults and children within the same household, in terms of access and use of household water (inter generational claim right). The older you are the more unchallenged 'claim right' you have to household water. Participants expressed concern over the unrestricted use of the water they have fetched by adult household members which in some cases leaves little or none for children's personal needs.

The situation becomes more frustrating as children are expected not to complain or grumble over the situation. The vertical claim right of age thus limits children's expression of their feelings or concerns over the use of household's water although they actively participated and in most cases are the ones assigned the responsibility for water collection. The following excerpts from field interviews express children's powerlessness to control and secure enough water to meet their personal needs.

Excerpt 26

270: I: Is it good for children to do the water collection for households?

271: R: No

272: I: Why did you say it is not good?

273: R: When children are complaining about the water they have collected, they (i.e. the grown-ups) will ignore them and be taken water as they like for themselves.

274: I: Sorry?

275: R: When children are complaining, the grownups just use it as they like⁶⁷

Excerpt 27

133: I: What if you go out and come back and all the water you have been fetching they have finished using it, how do you feel?

134: R: I will say, actually I will say I'll be angry with them

135: I: And when you are angry, do you complain?

136: R: I won't complain

137: I: Why won't you complain?

138: R: They are my seniors⁶⁸

⁶⁷ Document CB7 ¹¹⁻¹⁴

⁶⁸ Document OtB8 ¹¹⁻¹⁴

Children's 'powerlessness' appears to be more marked in cases where the task of water collection is perceived as difficult. Children cut down on their own water requirements to leave enough stored water for adults. By making this personal sacrifice, they hope to reduced both the burden and time spent making extra water collection trips to make up the deficit in household's supply.

Across gender, study findings suggest that boys focus more on their powerlessness to control and secure access to household's water to meet their personal demands, while girls on the other hand appear to make more sacrifices in terms reduction of their personal water requirement in other to leave enough for other household members. The following excerpts were quite explicit on the issue.

Excerpt 28

53: I: How do you carry the bucket you use to fetch water?

54: R: On my head

55: I: After fetching water, do they allow you to use from it?

56: R: But of course. Because I fetched it

57: I: Do you use it as you like?

58: R: No

59: I: Why?

60: R: Because it will waste and I will have start fetching all over again⁶⁹

Excerpt 29

89: I: Do they permit you to use the water that you fetch freely?

90: R: Yes

91: I: Can you use it as you like?

92: R: No

93: I: Why can't use it as you like?

94: R: Why I can't use it as I like is because, after fetching and storing the water in the house, the water may finish prematurely. When we finish collecting the water and storing it in the house, some people may come around that need to use it. That's why we store and cover it after fetching it and not use it anyhow.⁷⁰

Horizontal claim right (Child-Child relationship)

Between children from the same household, responsibility for water collection confers the horizontal claim right and control over water fetched (intra generational claim right), while the 'vertical claim right due to age as it applies

⁶⁹ Document OG23 ¹¹⁻¹⁴

⁷⁰ Document OG 18 ¹¹⁻¹⁴

to adults is played down. With regard to personal consumption, children who participate in water collection have more control over water they fetched than other siblings who did not participate in water collection. Exceptions to this unwritten rule of water rights are children that have attained the 'transitional age' and situations where the stored water serves common family purposes e.g. cooking family meals, etc.

Service Level and children's right to household's water

Children's understanding of the impact of water service level was explored in detail. In response to the question, do you have free access to the water you have collected in the house? Some of the participants reported that they had free access while others reported that their access was restricted. Data exploration showed that children's access to household water appear to be influenced by a number of socio-economic factors—whether or not a household buys water from water vending locations or has direct supply in the form of in-house connected boreholes, yard boreholes or yard taps.

Based on the different economic activities that are linked to household's water supply, three major categories were identified; category 1—those who reported that they don't buy water; category 2—those who buy water sometimes and category 3—those who reported that they had to buy all the water they use in their homes.

Category 1 (Do not buy water)

Some participants reported that they don't pay for water at the point of use and children had free and unrestricted access because water was either supplied from boreholes via in-house connection or that water points in the form of boreholes or yard taps are located within their compounds. Others reported that although they don't pay for water at the point of use, children's access and use of household's water was still restricted.

Data analysis reveal that this second group of participants are children from households without direct access to water points in terms of location, but relatives or friends that own water points allow them to fetch water from those sources free of charge. The quantity of water that household members are able to fetch and carry back to their homes from these sources determines household's water availability. Thus, household's water availability, partly explains children's restricted access.

Category 2 (Buy water sometimes)

The second category of participants reported that they sometimes buy water. The free access to household water that this category of children enjoy is because they have yard taps or boreholes located within their compounds or had free access to relatives or friends water points. On occasions when they cannot fetch water from these sources (probably due to public power outage), they pay to fetch water from alternative sources.

From their point of view, the unrestricted access to household water that they enjoy, even when it was purchased from other sources, is because they participated in household's water collection. In their understanding, fetching or participation in water collection 'confers' the right to household's water. The exercise of this right may however be limited by financial constraints.

Excerpt 30

75: I: That water you fetch, when you fetch it do you use it the way you want to use it?

76: R: Yes

77: I: Why?

78: R: I use it the way I want to use it because it's me that fetch it⁷¹

Excerpt 31

49: I: When you fetch this water and after fetching eh, and you want to use it, do they allow you to use it the way you want to use it?

50: R: Yes

51: I: Why?

52: R: Because it's me that use to fetch the water with my brother⁷²

Category 3 (Buy water always)

The third category comprises participants who apart from the River Niger had no other access to free water and had to buy water from yard taps and boreholes for household use. On one hand, some children reported that their access to household's water was not restricted despite the fact that access to safe water involves monetary transactions.

Four major factors were reported as responsible for their unrestricted access to household water despite the fact that their households paid money to vendors to have access to safe water. The first, as with Category 2, is that children's participation in water collection 'confers on them the right to household's water'. In their understanding, their involvement in fetching and carrying water

⁷¹ Document OB 12 11-14

⁷² Document CB14 11-14

confers on them the same right to the use of household's water as adult members.

Other reasons reported for children's unrestricted access to water include household's economic status and children's water management skills. Household's that can continuously provide money to buy water from water vendors allow children unrestricted access. On the other hand, a child's conscious and judicious use of household water may win the trust and confidence of adult household members hence the unrestricted access and use of household water even in situations where money was not always available to buy water.

Some children in this category reported that their access to household water was restricted because of the fact that their households had to pay to have access to safe water. The quantity of safe water available to household members was responsible for this restriction. Four issues were linked to the availability of safe water in their reported accounts. These are the issues of ownership of water points, cost of water, physical accessibility and household's water management.

Ownership issue: Some respondents reported that their access to household water was restricted because their families do not own private water points but had to rely on water purchased from water vendors. In some households, children do not fetch water everyday. This therefore limits the quantity available to its members and as a result, children's access to household water is restricted.

Physical access: Other reports focused on the 'suffering' involved in the task of fetching and carrying water. This according to the report limits children's use of water as some may use far below the quantity they actually require in order to save enough for others to use. This according to study participants was done 'so that the water will remain for a long time' and 'will not finish prematurely'. This way, children hope to reduce the number of water collection trips they had to undertake and save themselves the 'much suffering'.

Cost of water: According to participants, children involved in water collection do not 'like to use' as much water as they would actually require because of the amount of money involved. From the viewpoint of participants, 'because money is required to buy it', they have to 'measure it carefully' when they use it so that 'the water will not finish quickly'.

Household's water management and use: Because of the three aforementioned factors, household members focus much attention on the use and management water. Since children are on the lowest rung of the generational ladder, they are the regular losers in the jostle for household's water. According to study participants, mothers as natural custodians of household's water, usually restrict children's use of water as accusing fingers habitually point first to children when household's water is believed to have been misused.

Specific findings

Age group

Findings across age groups reveal no significant difference in the reported accounts of 7-10yrs and 11-14yrs age groups. However, 15-17yrs and participants 18yrs and above reported that their access right to water was not restricted as such, even in situations where households had to purchase water from vendors.

Gender and Community level

In the two study communities, findings from the reported accounts show that girls exercise more right to household water than boys. Comparing the results with that of other areas of Asaba, participants that were recruited into the study from other areas of Asaba did not show significant difference in recorded reports of their access to household water when compared to the findings in the two study communities. The study findings thus suggest that girls had more access to household water than boys even in the other areas of Asaba.

3. Children's viewpoint on the commodification of water

The dictionary defines commodity as 'a thing that is an object of trade' (The New Shorter Oxford English Dictionary 1993). The commodification of water according to Brown, '...is any act, practice or policy that promotes or treats physical water or water rights as articles of commerce to be bought, sold or traded through market transactions' (Brown 2003).

Children's attitude and views on the commodification of water in their communities are shaped largely by their experiences and understanding of water scarcity. Two major issues were uppermost in the minds of children residing in the two disadvantaged study communities. The first is the impact on family

income of having to purchase household's water from vendors. Some participants expressed the view that they 'don't like paying for water' while others reported that they 'like paying for water'.

Underlying some of the reasons for 'not liking' or 'don't enjoy' paying for water was the concept of water as a free good. Some children described water as a 'free gift of God' and should not be treated as an economic good. Others directed their attention to poverty or the socio-economic status of their families. In the words of one participant, 'money is scarce'.⁷³ The irregular payments of the salary of government workers was reported as contributing to the financial crisis of poor households in the study communities.

Study participants expressed concerns over loss of family money reserves through the payments made to water vendors. Sometimes money meant for other things was diverted into securing household's water supply. The economic trade-off in some cases results in adjustment of food budgets with severe impact on family nutrition. In addition, some children reported on the double standard where some people pay for water and some don't as their reason for 'not liking' to pay for water.

Excerpt 32

212: I: Why is it not good for people to sell water?

213: R: So that people can have water, because it's God's gift⁷⁴

Excerpt 33

85: I: Do you enjoy paying for the water you collect?

86: R: No

87: I: Why is it that you don't enjoy paying for water?

88: R: Because they are taking away our money⁷⁵

The second major issue of importance to children is the issue of ownership of water points and the economic realities of water vending in their communities. It appears that acceptance of the economic realities of un-piped household's water supply, forms part of the basis for the reported 'like to pay for water' in the children's accounts. According to study participants, since they don't own water sources, and water was neither provided by government nor offered free

⁷³ See words and specific language use

⁷⁴ Document: CB7¹¹⁻¹⁴

⁷⁵ Document: OG10⁷⁻¹⁰

of charge by private owners, the necessity of meeting household's water requirements meant they had to 'like to pay for water'.

Others expressed the view that they 'like to pay for water' because of the initial investment, operational and maintenance costs on the owners of these private water sources. However, study participants failed to appreciate the situation where access to water is based entirely on household's ability to pay. The verb 'like' in their 'world of water,' does not mean finding the condition that necessitated paying for water 'agreeable' or 'enjoyable' but more of an acceptance of the inevitable.

Excerpt 34

- 111: I: Do you like paying for the water you fetch?
112: R: I have to like it because it's not ours
113: I: On your own, would you like to pay someone to get water?
114: R: No it is not good
115: I: Why did you say it is not good?
116: R: It is wasting of money
117: I: Waste?
118: R: Yes, wasting of money⁷⁶

Excerpt 35

- 89: I: Do you like paying for water?
90: R: Yes
91: I: Why?
92: R: Why I like paying for water is because since the government did not give us water that will flow in our compound, and we have to go to a private individual for our supply of water, the person will definitely ask us to pay for it.
115: I: Is good for people to pay for water?
116: R: No it is not good
117: I: Why did you say it is not good?
118: R: Why I said it is not good is because we don't have enough money
119: I: So it is because of money problems?
120: R: Yes⁷⁷

⁷⁶ Document CB6 11-14

⁷⁷ Document OB1 7-10

Specific findings

Across age groups, no significant difference was recorded in the reported accounts of participants. Study results reveal that girls are more concerned about the financial impact of having to purchase water when compared to boys. Some hoped that government would come to their rescue through affordable service provision.

When compared to girls, boys appear to come more to terms with the economic realities of household water access via private water vendors. This was evident in their reported accounts. Some reported that they 'like to pay for water' or 'enjoy paying for water' in the absence of public services, because of the investment and maintenance costs of private investors.

While resigned to the situation where water access is based on household's ability and willingness to pay, they believe that the practice is unjustifiable in poor disadvantaged communities where, to borrow their phrase, 'money is scarce'. Between Cable-Point and Otu-Ogwu communities, participants in the former focus primarily on the issue of ownership of water sources, while those from Otu-Ogwu directed their attention essentially to the financial hardships on households as a result of paying money to have access to safe water.

Data Summary

The three parts of this chapter focuses on children's understanding of their duty, rights and responsibilities. In the first part, emergent questions from the pilot study were explored to gain an insight into what children meant by 'like fetching water' and 'enjoy fetching water'.

Children reportedly 'like fetching water' because it was the duty and responsibility of children. Water collection was perceived as 'child work' and a 'helping hand' activity that is directed towards meeting household's domestic water needs. In their water environment, participation in water fetching is considered as necessary for the development of personal coping skills. Data analysis further reveal that in the children's 'world of water,' they have to 'like' or 'enjoy' the task of water collection because it is a social obligation and duty that was handed down to them. Thus, fetching and carrying water is perceived as a socially desirable activity.

The second part examined the appropriateness of children's social role. From the reported accounts, the majority of children in the two study communities believe their role is appropriate. Three issues were however highlighted. 1. Duty to the family: In this regard, the responsibility for water collection is linked to the notion of the 'good child.' Thus, children's fulfilment of the 'obligatory duty' of water collection demonstrates respect, obedience and loyalty to the established traditional social formation.

Another twist to the issue of duty and water supply at the household's level is the introduction payments at water sources. Within their water environment, children's inability to contribute to family income, in their understanding, can be offset through 'labour payments' in fetching and carrying household's water.

Findings from the current study suggest that generational issues strongly influence children's right to household's water. Study results reveal an age related 'transfer of responsibility' for water collection. At a certain age, children are supposed to stop fetching water for household's domestic use and the duty is transferred to younger children.

Another issue of importance is the management and use of household's water. In adult-child relationships between members of the same household, the older

you are the more unchallenged 'claim right' you have to household water—Vertical claim right conferred simply on account of age.

However in child-child relationships between children from the same household, responsibility for water collection confers more 'claim right' over water fetched than other siblings that did not participate in water collection—horizontal claim right conferred through fulfilment of 'obligatory duty'. Data exploration identified three major categories based on different levels of economic activities that may influence children's access to household's water. Category 1—households that they do not pay for water at the point of use (direct access) and children had free and unrestricted access because water was supplied via in-house connection or had water points located within their compounds. Membership of these households confers automatic 'claim right' to water on children.

Category 2—households that had free access to relatives or friends water points (indirect access) but sometimes pay to fetch water from alternative sources. The unrestricted access to household water that the children continue to enjoy, even with purchased water, is in their understanding, due to their participation in the household's water collection. Thus, participation in water collection 'confers' the 'claim right' to household's water.

Category 3—households without direct access to water—that always buy water for household's use. As in Category 2, participation in water collection 'confers' the 'claim right' to household's water. The exercise of this right may however be restricted by factors, such as cost of water, physical accessibility and household's water management.

The third part of the section explored children's views on the commodification of water. Two issues are of primary concern to children. The first is the financial impact on family income of having to purchase household's water supply from vendors and the second is the economic realities of water vending in their communities. Study results suggest that acceptance of the economic realities of household's water supply, form part of the basis for the reported 'like to pay for water' in the children's accounts. The verb 'like' in their 'world of water', does not mean finding the condition that necessitated paying for water 'agreeable' or 'enjoyable' but more of an acceptance of the inevitable.

Chapter Five—Section Three

Health Implications of Children's involvement in household's water collection

Introduction

In this section of the document, I present the reported accounts of children on their health concerns and perceived risks, in relation to their roles and activities in household's water collection.

This section focuses on the second objective of this study: To explore reported social and health related impacts of children's involvement in household's water supply, based on data from Field interviews and Focus group 3.



In this section, I present children's perception of risks relating to their activities at the community water sources. Then their views and experiences regarding water safety, through the physical symptoms experienced during or following water collection, to the health issues relating to households water storage and use before concluding with a summary of the important findings.

(1) Community's water sources (Risk perception)

Study participants identified a number of community water sources. These include yard taps linked to the public network system, water boreholes, the River Niger, rainwater collection etc. Each source relates to children in a different way, hence the different experiences reported in this study.

As most of the water collection activities of children involving a number of adult-child and child-child interactions take place in the public domain, it is not surprising that there were reports of arguments over who should take turn to fetch water and how much to pay for water fetched. These situations sometimes result in fights with or without bodily injuries. Because of the wet and slippery conditions around the water sites, children have experienced serious bodily injuries because of falls while carrying water.

There were also reports of children drowning during their visits to the river to fetch water. According to reported accounts, the temptation to seize the opportunity to swim in the river becomes too strong for some to overcome and as a result, children have been swept away from time to time by the river current.

For others, the situation is different particularly around isolated privately operated boreholes. There were reports of sexual harassments of girls at some of these privately owned water sources.

Water boreholes

The thriving business of water vending in the two study communities was one of the major concerns of study participants. Although the proliferation of privately operated boreholes have had a positive impact on the distance children had to travel to collect water,—as the drilling of each new water point serves to bring the sources nearer to households,—the poor water quality due to lack of supervision and standardisation of drilling was a serious cause for concern amongst study participants.

They reported that water collected from some borehole sources was either coloured, with funny tastes and/or having particles. For these reasons, each household, rather than government, is saddled with the responsibility for determining which borehole source to fetch water from and which to avoid because of concerns over water safety. Thus the responsibility for water safety and public health becomes that of communities rather than government.

Concern over the safety of water in Asaba was highlighted in an interview with a participant who resides outside the two study communities, but whose father is an official of the Delta State Urban Water Board. Like most government officials, his house was supplied by a private borehole linked to his house via a network of pipes. Interestingly, this official, according to the reported account, receives free supply of packaged drinking water from the biggest water packaging company in Asaba. The following excerpt from the interview tells the story in the words of the participant. The discussion centres on household's water consumption and use.

Excerpt 36

55: I: The one that flows inside your house that borehole, do you use it freely?

56: R: Yes we use it freely because it's inside our compound we can use it

57: I: The water that is in the borehole is it drinkable?

58: R: Yes. No it's not drinkable sorry

59: I: You don't drink it. Then where do you get the water you drink?

60: R: My father buys 'pure water'⁷⁸ and kept it in the fridge and twelve or eleven bags and he will not pay

61: I: He doesn't pay for 'pure water'. Why?

⁷⁸ See words and specific contextual usage.

- 62: R: We don't know but they sell it free for him in Jemok (*referring to the packaged water company known as Jemok Packaged Water*)
- 63: I: They give it to him free at Jemok and he gets so much like that, like 12 big, big bags?
- 64: R: Yes
- 79: I: Why do you think your father says you should be drinking 'pure water'?
- 80: R: Because the water will have sand inside (*referring to the borehole*) when the water is going down sand will be entering through the pipes that why, so that our stomachs will not pain us⁷⁹

The River Niger

In most cases the water collected from the river is used for washing and bathing because it was considered as contaminated and unsuitable for human consumption. No participant reported ever drinking river water except accidentally while swimming in the river. From the standpoint of children, river water is only used to supplement water purchased from private vendors. In cases where households find themselves in financial crisis, drinking water is purchased from private vendors while the water for all other purposes is fetched from the river.

Rainwater collection

Data analysis reveals that participants reported the seasonal supplementary use of rainwater in one form or the other. As a process, rainwater collection according to respondents, involves placing wide basins or buckets under the corrugated zinc roofs to collect the water falling over the edges. The basins or buckets when filled are then emptied into other water storage vessels.

From the standpoint of children, the raining season comes as a period of relief from the everyday task of water collection as well as an occasion when they can 'mix' the business of water collection with the pleasure of playing in the rain.

Although children enjoy collecting rainwater as it affords them the opportunity to play in the rain, concerns were expressed over its purity and possible contamination of water collected and stored in this way.

Excerpt 37

- 141: I: When it's raining, do you fetch as much water as on the day that there is no rain?
- 142: R: No
- 143: I: Why?
- 144: R: Because when it is raining, when I fetch one gallon we will use that for drinking and then use the rain water to wash clothes and other things

⁷⁹ Document OtG

145: I: So you use the rainwater to carry out the household chores?

146: R: Yes

147: I: Do you enjoy collecting rainwater?

148: R: Yes

149: I: Why?

150: R: So that the rain drops can fall on me

151: I: So you like playing and collecting rainwater.

152: R: Yes⁸⁰

(2) Community's water sources (Issues of water safety)

Study participants expressed their views on the quality of water supplied to households from the three main drinking water sources—yard-taps, water boreholes and packaged drinking water. These three drinking water sources are presented here in turn.

Yard Tap Water

Participants in this study believe that water supplied via yard taps undergo proper water treatment when compared to water fetched from boreholes. In their understanding, Delta State Urban Water Board purifies and treats water before distributing it via the public network system. From their viewpoint, water supplied via yard taps are 'cleaner' than that fetched from boreholes.

However, some children expressed concerns over the quality of water supplied to some areas of the community. Because the network pipes are old and rusted, the water supplied via these taps takes on a red colouration. According to the reported accounts, this made the water unsuitable for consumption and residents of these sections of the community turn to boreholes for their supply of water.

Excerpt 38

42: John: As he said, the one in tap that they are cleaner because they come from the board (i.e. the Delta Water Board). The one close to my compound (yard tap) is always red because the pipe leading from the board, some are rusted so some are very bad you have to allow it to settle and even if you taste it, it tastes rust you know that even after boiling them you still have the rust taste in it. Then you find that it is useless most of the time. So I prefer going outside to fetch the one from the borehole and than the one that comes from the board.

⁸⁰ Document CG1a 7-10

Borehole Water

Although some children—particularly those involved in water vending at borehole locations—reported that the water supplied via boreholes is good for human consumption, others expressed concerns over its safety.

According to reported accounts, the water supplied by some boreholes in the community had particles. Most times, families had to wait for the water to 'settle down'⁸¹ before they use it. In other accounts, the children reported finding traces of oil either on the water surface or on the sides of the water vessels after they have been used to fetch water.

The solution to these problems, in their understanding, is to seek alternative water sources and avoid those considered unsafe. However, choice becomes very limited when most of the sources display the same unpleasant characteristics. According to the reported account of one study participant, out of the five water boreholes around her house, only one supplies 'safe water'.

The other four borehole locations supply water that had an unpleasant taste and smell. For these reasons, water from such boreholes had to be boiled and filtered before consumption. Some residents, according to reported accounts, add alum and other chemicals to purify water before consumption.

Participants also expressed concerns over water storage at the vending locations. Water pumped directly out of the underground water table is stored temporarily in large metal and plastic drums, which may be located overhead on raised platforms or left on the ground. Taps leading out of these tanks either directly as the case with those at the ground level, or via a network of pipes before ending in a tap outlet as with the case of those on raised platforms.

Concerns were expressed regarding the quality and safety of water stored in these tanks. According to some participants, the force of the incoming water stirs up residual water left in the tanks so that water collected immediately after or while the pumping was going on is usually full of all kinds of particulate matter.

⁸¹ See 'settled water' in words and specific language use (appendix 23)

Packaged drinking water

Study participants expressed concerns regarding the safety of packaged drinking water. From their perspective, the general demand for packaged water has nothing to do with its quality but because people find it handy and readily available when they are thirsty.

Commenting on the safety of packaged drinking water, study participants expressed concerns on the safety of some brands of packaged water adding that some were produced clandestinely and under unhygienic conditions. Some brands of packaged water, they noted, had an after taste and cases of stomach upsets following the consumption of packaged water are quite common.

Apart from concerns over the processing of packaged water, study participants also expressed concerns over the handling and storage of the finished product. The normal shelf life indicated on the product is three months after the date of manufacture.

According to reported accounts, water-packaging companies fail to indicate the date of manufacture and expiry of their products. In addition, study participants observed that though three months is specified as the expiry period, most of the products turn murky with an unpleasant taste and visible sediments after two weeks.

However, the service failure of the public water supply, contaminated and sometimes particulate water from boreholes, continue to increase the demand for packaged water. To avoid or at least minimise the perceived risk from packaged water consumption, from the standpoint of children, care must be exercised in the choice of products that are procured for consumption.

Additional efforts must be made to buy products directly from the distributors rather than the retailers to reduce the risk of buying products that have been left on the shelf for a long time.

(3) Children's health concerns in relation to water transport

The majority of children in this study reported on one or more clinical symptoms and physical signs in relation to their degree of involvement and method adopted for water transportation. These symptoms include physical weariness resulting from exertion, general body aches, chest pain, neck pains, headaches, pains in the leg, bodily injuries and suspicions of impaired height attainment because of growth deformities.

Out of the three identified methods of carrying water—by hand, on the head and the use of wheelbarrows or pushcarts—participants that fetched water by adopting one form of mechanical assistance or the other appear to find the task much more pleasant and reported less physical symptoms in comparison to those who carry water on their heads or by hand.

A number of children that reported no symptoms adopted one form of mechanical assistance on the other. However, several symptoms were linked to the use of wheelbarrows and pushcarts. These were inflamed palms, back pains, stiffness of back and neck, general body aches and fatigue.

Depending on geographical terrain, the use of wheelbarrow creates additional risk for children. Participants reported that children suffer injuries when wheelbarrows topple over due to uneven terrain or overload.

Excerpt 39

306: Innocent: like me carrying wheelbarrow, it will only affect my back, before then my back will be down pushing the wheelbarrow and getting to where am going my back will still be down and I will not like to straighten up because if I straighten up my back will make a sound so I will like to keep my self that way⁸²

Those who fetched and carried water on their heads reported that they had headaches, felt pains in the head, neck, chest, general body aches cold symptoms, internal heat and general fatigue. In addition, carrying water on the head becomes particularly tricky when walking over uneven ground or slopes as the case of children that visit the river to fetch water. Mechanical assistance cannot be easily adopted during water collection visits to the river because of the sandy riverbanks.

⁸² Document 'Focus Group 3'; Paragraphs 311-318

Children that carried water vessels by hand in this study are few when compared to other methods. Most reported that they felt all right with apparently no physical symptoms. However, some reported that they felt weak and tired with inflamed palms.

(4) Children's health concerns in relation to household's water storage and use

Water collected by children when not for immediate use was stored temporarily in various water vessels within the household. In some cases, water may be left in the vessel that was used to fetch it—big Jeri cans or basin. In other cases, it may be transferred into larger storage vessels such as the 200litre drums left outside the homes or 'buta', which may be left either inside or outside the house depending on the amount of living space available to the household.

Water collected in metal drums is used for cooking, washing dishes, clothes and other domestic activities. In some cases water stored in 'butas' is reserved strictly for drinking while in others, it could serve both drinking and other domestic purposes. Study participants expressed concerns over the condition of water storage vessels and the difficulty most households experience in keeping them clean.

According to reported accounts, storage vessels were seldom washed. Washing may only take place when for one reason or the other the water in the vessel is completely used up. These occasions unfortunately, are well spaced out as all attention is focused on maintaining a form of internal water reserve against its scarcity.

Data Summary

This section focused on children's accounts on their health experiences, concerns and perceived risks, in relation to their activities in household's water collection. Because water collection activities of children within the two study communities take place in the public domain, fears that arguments over turns to fetch water may result in fights with bodily injuries were expressed. Falls and bodily injuries as a result of the hazardous surroundings of water sites is also a major cause for anxiety. Fears were also expressed over the risk of children drowning in the river and sexual harassments of girls visiting some privately operated boreholes.

In their water environment, each household rather than government is responsibility for its own safety. Study participants reported on the poor quality of water supplied by boreholes due to lack of supervision and standardisation of drilling sites. According to reported accounts, water fetched from some borehole sources was either coloured, with a funny taste and smell or had visible sediments. In the choice of water source, participants believe that water supplied via yard taps undergo proper water treatment when compared to water fetched from boreholes.

The supplementary role of river water becomes more apparent when households are in financial crisis. On these occasions, drinking water is purchased from private vendors while water for all other purposes is fetched from the river. Participants expressed concerns over the manufacture, handling and storage of packaged drinking water. Some brands, they noted, had an after taste and cases of stomach upsets following the consumption of packaged water are quite common. Study participants also expressed concerns over household's water storage vessels and the fact that they are hardly ever washed.

A number of clinical symptoms and physical signs relating to children's degree of involvement and method adopted for carrying water were reported in this study. These include physical weariness resulting from exertion, general body aches, chest pain, headaches and neck pains.

Discussions; Conclusions and Recommendations

Chapter Six

Discussions, Conclusions and Recommendations

Introduction

In the preceding chapters four and five, I focus attention on the aims of this PhD thesis: (a) To describe the role of children in the social organisation of collection and distribution of water and related health implications at household level. (b) To analyse the key conceptual frameworks within which water is understood by children focusing on their roles and rights in household water provision and use.

In this chapter, I direct my attention to the study results from the preceding chapters four and five by drawing on findings from, pilot study 2, field observations, individual interviews and focus group discussions conducted in this study.



This chapter is divided into two sections. I begin the discussion in the first section by considering the current study findings in the light of existing research studies. Then I examine the implications of the study findings for the United Nations human right to water framework by comparing its application and effectiveness against the African traditional rights framework within children's water environment in the two study communities.

In the second section of this chapter, I direct my attention, based on current findings, to the study conclusions before closing the chapter with recommendations for further research and the lessons I have learnt from carrying out this study.

Chapter Six—Section One

Discussions

A consideration of the findings in the light of existing research studies

Existing studies on household water access, consumption and use as well as the related health implications in the South are quite extensive (Cairncross 1990; Bradley, Stephens et al. 1992; Thompson, Porras et al. 2001; Bartlett 2003; WHO and UNICEF 2004a; WHO 2006).

In the review of the interaction between household's water accessibility and quantity in order to assess how health may be influenced, most studies focus essentially on explaining how an increased water accessibility equates to increased volumes between service levels .

Past studies focus mainly on women's roles (particularly rural women and girls) in households water provision and management because it is usually taken for granted that they are exclusively responsible for filling the 'access gap' in service between piped and un-piped households (Curtis 1986; Barnett 1987; Dufaut 1988; Aithal 1997; Seaforth 2003). There are however few exceptions (Thompson, Porras et al. 2001; Bartlett 2002a; Bartlett 2003).

Apart from acknowledging that children participate in household's water supply—with particular attention to girls and how their water collection activities affects school attendance (WaterAid 1996; Mensah 1999; WaterAid 2000a; WaterAid 2000b)—very little is documented on the activities of children as a group and their views and experiences have attracted very little policy and research interest.

Although the past three decades have experienced a marked increase both in the number of children living in urban areas (Riggio 2002; United Nations 2002; UNICEF 2002e) and in their water collection activities (Thompson, Porras et al. 2001), little account is taken on the information children possess and its effect on their relationship with their present water environments.

This study attempts to fill this gap in knowledge in three ways:

- Firstly, it provides a detailed account of children's active involvement in the supply of water to household's that are neither connected to the public network supply nor own private water sources.

- Secondly, it provides an insight into children's perspective on their experiences as well as their understanding of their rights and duties in household water provision.
- Thirdly, it documents the health concerns and subjective feelings of children that are actively involved in household's water provision.

Household's water Supply

Evidence abound from studies on the importance of quality and quantity of water for children's health in general and diarrhoea in particular (Esrey and Habicht 1986; Cairncross 1990; Bradley, Stephens et al. 1992).

White et al in *Drawers of water I*, provide evidence of the importance of physical factors—whether or not a household is located in an urban area and the distance to the source—in determining household's levels of water consumption and use (White, Bradley et al. 1972).

In a follow up study, Thompson et al noted that economic factors have become more important than physical factors as determinants of household's levels of water use (Thompson, Porras et al. 2001).

Findings from the present study support the evidence that economic factors are important in determining levels of household's water use within the two study communities.

With the breakdown of the public water supply network in Cable-Point, the intermittent and insufficient service provided by yard taps in Otu-Ogwu, private ownership of water sources in the form of boreholes became an important factor in household's access, consumption and use of water.

Children from households with private water points had unrestricted access to water while those from households without private water sources had varying degrees of restrictions in water consumption and use.

Children's access and use of household's water

In a classic study, Cairncross and Cliff noted in their study that bringing water sources closer to households brought about a reduction in the time spent on water collection task, an increase in household member's average water consumption and use, water for household's food preparation increased, with a marked reduction in the incidence of trachoma within the study community (Cairncross and Cliff 1987).

The current study takes the issue of household's water consumption and use a bit further by exploring children's views on household's water consumption in relation to adult household members. In this regard, study findings reveal that children's consumption and use of household's water was restricted when compared to adult members in households without direct access to water (Un-piped households).

The major reason for the perceived restriction of children's water access is the limited quantity of safe water available to such households. As a result, generational, physical and economic factors combine to influence individual member's consumption and use of household water.

1. Generational Factor

In the African traditional setting, the older you are the more rights you have and the younger you are the less power you have to exert your rights (Belembaogo 1994; Ogbuagu 1994). Since children occupy the lowest rung of the generational ladder, they are usually the first to be eliminated in the competition for use of household's water.

2. Physical Access

'Using water for personal and domestic cleanliness is not simple in places where every drop of water has to be painstakingly hauled' (Black 1990). Since children are usually assigned the duty of supplying water to un-piped households, children's perceived 'suffering' while carrying out the task sometimes limits the quantity they use to meet their own personal needs. This in their understanding will help to reduce the number of water collection trips they have to undertake.

3. Economic Factor

Another important factor that limits children's use of water is the economic status of households in terms of ability to pay for water. Being aware of their family's financial situation, children from poor households cut down on their water use with severe implications for their personal hygiene and general health.

Cost of water

Extensive research has been carried out on the cost of water (White, Bradley et al. 1972; Whittington, D; et al. 1989; Whittington D et al 1990; Katko 1991; Whittington and Choe 1992; Thompson, Porras et al. 2001).

A number of these studies focus on the willingness and ability of the poor to pay for water services using the contingent valuation method. Thompson et al noted that water was significantly more expensive to obtain in urban areas when compared to rural areas (Thompson, Porras et al. 2001).

Because of children's economic dependence on adults, studies on the cost of water rarely include the views of children. The results from field interviews of children in this study provide evidence that children do have their views on the cost of household's water, that they can sensibly express their understanding on the issue of the commodification of water and that power supply had a significant impact on water supply for households in disadvantaged urban communities.

Children's views on the cost of water

Children's attitude and views on the cost of water in their communities are shaped to a large extent by their direct experiences from participation in household's water supply. Underlying the children's viewpoint is the concept of water as a free good. Starting from the premise that water is a 'free gift of God' and should not be treated as an economic 'good,' they highlighted socio-economic status and the economic impacts of the activities of water vendors on household's income.

From the viewpoint of children, having to buy water from vendors accounts for a significant loss of family income resulting in the diversion of money meant for

other things into the purchase of household's water. This economic trade-off, in most cases, result in adjustments of food budgets with severe impact on family nutrition.

The unfairness of the situation, in the understanding of children, is the double standards where some people pay for water and others don't—government residential quarters. Although the necessity of meeting household's water requirements made children in disadvantaged communities to appreciate and accept the economic realities of their existence (expressed with the phrase 'enjoy fetching water' as indicated elsewhere).

They however, failed to understand the situation where access to water is based entirely on household's ability to pay. From their viewpoint, the practice is unjustifiable in poor disadvantaged communities.

Health implications of fetching and carrying household's water

A number of studies that were conducted in countries of the South have explored the health implications of carrying water for households (White, Bradley et al. 1972; Dufaut 1988; Thompson, Porras et al. 2001).

Studies have also shown that women and children spend hours fetching water in plastic or metal containers which are either carried on the head, back, hip, shoulder or by hand, making severe nutritional demands as well as placing extreme strain on the skeleton of children (Dufaut 1988; Seaforth 2003).

This thesis contributes to the knowledge by documenting the health implications for child water carriers as seen with the eyes of children. Thus the study focuses on the health concerns, perceived risks, subjective feelings and reported clinical symptoms of children that are actively involved in household's water collection.

Risk Perception: Community's water sources

The activity of children in household's water collection in most cases takes place in the public domain. Arguments over who should take turn to fetch water and how much to pay for the water collected sometimes results in fights.

The immediate surroundings of boreholes and yard taps due to constant water spillage are usually wet and slippery, thus increasing the risk of falls and bodily injuries particularly for children who carry water on their heads over steep and uneven terrain.

According to reported accounts, privately owned and managed water points poses the added risk of sexual harassment for girls mostly when these water points are sited in secluded compounds.

From the viewpoint of children, public power cuts, apart from the high risk of the use of unsafe water, also increases the risk of deaths from drowning.

Water Quality

Study participants expressed a marked preference for water supplied via yard taps. In their understanding, water supplied by yard taps undergo proper water treatment making it safer for consumption when compared to water supplied to households from other sources. Lack of supervision and quality assurance of private borehole development on the part of government created a situation where water quality was left to individual household's judgement.

Packaged drinking water

A number of children in this study expressed serious doubts over the quality of locally packaged drinking water. According to reported accounts, some products were linked to cases of stomach discomforts and upsets following consumption of packaged drinking water. The children sadly noted that the inadequate supply of safe water from the public network, contaminated and sometimes particulate water from boreholes continue to increase community members demand for packaged water.

Children's health concerns in relation to water transport

Study participants reported on a number of clinical symptoms that were linked to the method they adopted for water transportation. These include weariness resulting from physical exertion, general body aches, chest pain, headaches, neck pains, pain in the legs, bodily injuries and suspicions that carrying water on the head has a negative influence on children's growth.

Implications of the study findings for current theory

The human right to water is said to be possessed equally by everyone by reason of our humanity (UNICEF 2002c). The interest each person has in water as an essential biological necessity for sustaining life serves as a ground for a 'claim right' to water. This theoretical perspective forms the basis for the United Nations declaration on the right to water.

However, the ability to exercise this 'claim right' to water, as the current study findings have shown, is influenced largely by the community's socio-cultural practices. The major implication of the findings in the present study for the human rights approach to water, is the apparent exclusion of children from households without direct access to safe water supply (un-piped households) from its 'universality' of rights framework.

I present this conceptual exclusion of this group of children using the following three distinct areas addressed by the UN's general comments on the right to water.

- (1) To protect children in their household's water collection activities
- (2) To guarantee the power for children to demand their right to water and
- (3) To hold government accountable for ensuring the equitable distribution of services.

(1) Protection of children involved in household water collection.

Human rights have been accused of being 'unduly biased towards morally individualist societies and cultures that emphasise a work free childhood at the expense of the communal moral complexion of many African and Asian societies'. In an attempt to incorporate cultural diversity, the United Nation's human right to water at the State level, demands that State parties should ensure:

- Physical access to water facilities or services that provide sufficient, safe and regular water with sufficient water outlets at a **reasonable distance** from the household to avoid prohibitive waiting times.

- That children are not prevented from enjoying their human rights through the **burden of collecting water** (United Nations Economic and Social Council 2002).⁸³

While these demands may have met the expectations of critics of a 'work free' childhood, the ambiguity of these two demands, as this discussion will show, has resulted in a document that is of little use to children in disadvantaged urban communities in the South.

UN's 'Reasonable distance'

The relationship between the distance to community's water source and household's consumption and use of water has received extensive research attention. Past studies provide evidence that bringing the water source closer to the homes brought about an increased volume of water for household's consumption. The resultant time savings from the shortened distance meant that women and children devoted less time and effort to water collection activities (Cairncross and Cliff 1987; Cairncross 1990). Past studies also provide evidence that when water collection is made substantially easier in terms of shortened distance to the source, the task will be transferred to younger children (Nicol 1998; WaterAid 2000b; WaterAid 2000c).

While reviewing the impacts of reduced distance and children's activity status in household's water collection, Thompson et al reported that the general decrease in the average distance to water sources in the urban areas of East Africa was accompanied by an increase in water collection trips, as well as an increase in the number of child drawers (Thompson, Porras et al. 2000; Thompson, Porras et al. 2001).

In the present study, household's distance to a yard tap provides an insight into the children's assessment of water collection task. Those waiting at the yard tap (between 10-30mins) preferred the shorter distance to the yard tap than to carrying water on their head over longer distances, despite the fact that considerable waiting time can be saved by opting for other time saving alternatives.

On one hand, having water sources as close to the homes as possible, proved most pleasant from children's standpoint, while on the other hand, the shortened

⁸³ The bold emphases are mine.

distance to the water sources was reported to have affected them in another way. In Otu-Ogwu, because of the close location of yard taps to households, the task of water collection was judged as easy enough for children to undertake. For this reason the 'responsibility' for water collection was passed over to children which partly explains the presence of the large number of children that were seen fetching or waiting to fetch water at the yard tap in Otu-Ogwu.

While international focus is on water outlets being at a 'reasonable distance', what was uppermost in the minds of children from the reported accounts, is the daily toil of water fetching, the repetitive water collection journeys and the resultant weariness following the completion of the task.

In their understanding, if the total distance covered on these repeated trips is taken into account, it will show that children walk very long distances on daily basis. This highlights one of the 'hidden' costs that children have to pay for household's daily supply of water.

UN's 'Burden of collecting water'

In the light of the preceding revelation, are 'children' in Asaba being denied the enjoyment of their human rights through the 'burden' of water collection as demanded by the UN's general comment? Before attempting to answer, it may prove helpful to take a closer look at certain aspects of this question in order to appreciate children's perspective on their experiences in household's water collection.

The United Nations children's right to water document often refer to children 'as if they were an undifferentiated collective', yet in real life interactions we normally fragment children into a number of different identities: babies, toddlers, nursery children, secondary school pupils and young adolescence' (Hendrick 2001).

There is therefore 'a big difference between childhood, as a concept and children as people'. It is therefore important to remember, as Hendrick put it, 'that when we look at children, we are not looking at an idea (childhood), but at people who in many respects are active if only in the sense of how they deal with their daily life situations' (Hendrick 2001).

Clarity on the issue of childhood as a 'concept' and children as 'people', as the rest of this section of the document will show, is important in appreciating the

exclusion of children in disadvantaged communities from the UN's protective framework.

The use of the word 'burden' in the UN's general comment appears to be very ambiguous in a sentence that was designed to be all encompassing. Burden according to the dictionary refers to the 'weight to be borne or conveyed (The New Shorter Oxford English Dictionary 1993).

While ergonomic standards exist for factory workers and others in the formal labour industry (in terms of maximum weights in load lifting and carrying) and specifically for women—ILO recommends a maximum load of 25-30kg (International Labour Organisation 1988), there is no specific guideline on the weight of water children are supposed to carry within households (Casey and Dockrell 1996).

Weight guidelines for children as study results in chapter five have revealed, is left to individual households and communities to decide. 'In fact, many of the activities in which children are engaged are perceived by the authorities as hobbies rather than work, despite their crucial role in family survival' (Boyden 1997).

Weight of water and Children

Carrying a load is stressful both physiologically and bio-mechanically (Casey and Dockrell 1996). While investigating the relationship between the number of trips and the size of water container used for water collection, White et al noted that the number of trips made is somehow set to fit the household's daily work schedule and the volume of water carried is the product of the number of trips times the size of the container. Large families employ more small children to carry water using smaller vessels. Hence, the more the number of children, the more likely they are to carry and the smaller the average container size (White, Bradley et al. 1972 page 132).

Study findings reveal that children within the study communities favour the use of Jeri-cans when compared to other forms of water vessels to fetch water. These Jeri-cans come in different sizes (10, 15, 20, 30, and 50litre capacities). A 10litre capacity Jeri-can when filled with water weighs approximately 10 kilograms.

Photograph 17: Different sizes of Jeri-cans & Child beside a 50litre Jeri-can



50, 25, 10, 5, 5 litre Jeri-cans



11yrs old girls standing beside a 50litre

Fieldwork photographs January 2005

The present study contributes to knowledge by documenting what children consider as their 'own' safety guidelines for the task of water collection. Age is commonly used as the unique criterion for identifying children (Qvortrup et al 1994, James et al 1998, Corsaro 1997). Current study findings show that the carrier's age and water container size are important factors in children's assessment of the task of water collection.

From the reported accounts, older children in the family are expected to carry bigger water containers when compared to younger siblings as they are perceived to be physically stronger on account of their age. From the standpoint of study participants, children of between 5-7yrs should not be involved in water collection, those between 8-10yrs may use 10litre vessels. While children between 11-15yrs may use 10-20litre vessels, no child should use more than 20litre vessel to fetch water. Children between 16-17yrs are regarded as being too old to fetch water for household use.

Water collection, a 'non-hazardous' activity?

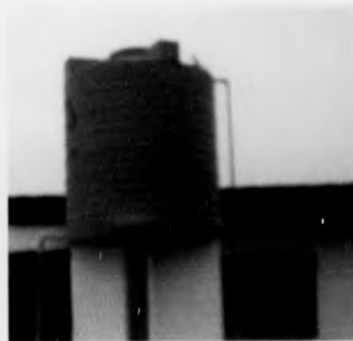
Results from individual interviews and group discussions show that children in the two study communities perceive water collection as 'child work' and a 'helping hand' activity directed towards meeting household's domestic water needs. From their viewpoint, water collection is a social obligation and duty that was handed down to them. Thus fetching and carrying water is perceived as a socially desirable activity.

'Helping hand activity' has been defined as 'non-hazardous domestic tasks undertaken by a child of any age as part of daily chores in their own family home, that do not interfere with any of the child's rights under international law, and that do not constitute economic activity (International Labour Office 2004).

Data from the guided tour in chapter four revealed that Aisha (who is six years old lives with her family) stands in the supposedly shallow part of the deep River Niger as she fills a 20litre basin while on her head, because she is incapable of lifting and placing the filled basin onto her head unaided. Then she carries the approximately 20kg weight of water up a 15m precarious ridge back to her home. Can Aisha's water collection task be rightly labelled a 'non-hazardous domestic chore' since it is undertaken for 'the family', not as an 'economic activity' and not in the household of a 'third' party?

Data from the field observation tagged 'a working day in the life of a child' further reveal that, nine years old Unoma hauled a total of 300litres of water, which amounts to 300kg weight of water. Adekunle hauled 125kg weight of water in addition to supplementing the family's income with proceeds from the sale of packaged water.

In all, six little children aged between eight and thirteen years on a 'normal' day carried a total of 915kg weight of water on their heads. That volume of water will fill and overflow the 800litre capacity tank—shown in the photo inset—with 115litres to spare, while apparently lending a 'helping hand' with a 'non-hazardous' child work.



Despite international rhetoric on child rights (UNICEF 1989; UNICEF 1997; UNICEF 2002b), the International Labour Office pointed out that the 'nature of hazardous labour and the forms of work that fall into this category are determined by each country and are not stipulated in international instruments' (International Labour Office 2004).

According to the International Labour Organisation (ILO), child labour refers to situations where children are engaged to perform domestic tasks in the home of a third party or employer that are exploitative (International Labour Office 2004). This definition therefore excludes children who do the same amount of work under similar conditions in their own homes.

Another measure used by the ILO in its definition of child labour, is work that affects school attendance. This is partly due to the apparent part that full-time education plays in securing the withdrawal of children from the labour market. For this reason much attention within the water environment is paid to increases in school enrolments particularly for girls (WaterAid 2000b; WaterAid 2001).

While increases in school enrolment may sometimes result from improvements in water supply, findings from the current study show that school enrolment is not always an indication of water service level in disadvantaged urban communities. Most of the children in the current study attend school while still being actively involved in water collection. The focus of attention should be on what children do and how they do it. Ironically, results from the present study suggest that school attendance may in fact contribute to 'child labour' because some children work (sale of package drinking water) to supplement educational costs.

When participants in the present study were presented with ILO's definition of child labour, the children described household's water collection task as child abuse even when carried out within the context of their own homes, not in terms of economic exploitation, but in terms of the labour exploitation of children, the inconveniences of forced water collection, and the loss of children's right to rest and recreation [Article 31 of the CRC (UNICEF 1989)].

Excerpt 40

280: J:And I think it is child abuse, because when am, when am fetching water and I say am tired, my uncle will just tell me, come, you see in those days when I was in the secondary school, we trekked miles in fetching water, this one that is just opposite you.

you're saying you are tired, what have you fetched, have you filled the drum, or what have you done? You have been sleeping all day and you have the mouth to say this. And I think it is wrong because sometimes am forced doing it, me and my younger brother will say O O, what kind of thing is this, what's this trash and I think it is child abuse because they don't tell you to do it at your own convenient time, they force you to do it and doing it in a very hard way.

A number of studies conducted in countries of the South have explored the health implications of carrying water for households (White, Bradley et al. 1972; Dufaut 1988; Thompson, Porras et al. 2001). It was reported that children who carry large vessels of water from an early age may suffer damage to the neck, head and spine (Nicol 1998).

Dufaut reported that, when children spend hours fetching water, it places extreme strain on their skeleton. In addition, carrying heavy loads of water has a great impact on bone developments because their bones are still growing and the epiphysis of the bones have not yet closed (Dufaut 1988).

Study participants reported on weariness resulting from physical exertion, general body aches, chest pain, headaches, neck pains, pains in the leg, back pains, shoulder pains and stiffness of the back and neck.

Excerpt 41

- 290: Eddy: Yes, like me after fetching water I found out that my neck is bending and I have to hold in like that for some time to relieve it
- 291: Moderator: You feel neck pains []
- *****
- 306: Innocent: like me carrying wheelbarrow, it will only affect my back, before then my back will be down pushing the wheelbarrow and getting to where am going my back will still be down and I will not like to straighten up because if I straighten up my back will make a sound so I will like to keep my self that way []⁸⁴

⁸⁴ Focus Group Discussion 3

(2) Children's right to household's water

The universality of human rights is grounded in what are considered to be some basic indispensable attributes for human well-being, which all of us are supposed to share. The United Nations General Comment on 'Human Right to Water' states that '...the human right to drinking water is fundamental for life and health...' ⁸⁵. The human rights approach argue that the principal function of human rights is to protect and promote certain essential human interests (Nickel 1987). The interest each of us has in water as a biological necessity for sustaining life serves to ground our claim to the right to water (UNICEF 1989; Bartlett 2003).

While this theoretical approach may have gained international acceptance, its eventual application at the national level have however proven to be difficult. 'Due to its fundamental role in society's life, water has a strong cultural dimension. Without understanding and considering the cultural aspects of our water problems, no sustainable solution can be found' (World Health Organisation 2006).

Results from the present study suggest that United Nations Human Right to Water and African traditional rights system are operating side by side. While the former applies to children living in piped households in the middle and high income urban areas, the African traditional rights system is applicable to children and adults of un-pipe households in low income disadvantaged urban communities.

United Nations Human Right to Water and African Traditional Social Rights

'Cultural differences play a key role in the way water is perceived, valued and managed in different societies' (World Health Organisation 2006). In contemporary disadvantaged urban communities, children and adults find themselves influenced by cultural globalisation and at the same time remain tied to homeland traditional practices. Traditional roles and understandings are sometimes changed and fixed into new invented tradition (Aguila 1998).

⁸⁵ Details of the draft of the General Comment on the right to water can be found on <http://www.citizen.org/documents/therighttowater.pdf> ..

For disadvantaged households within the urban context, the universal child right's interactions with local traditional practices have led to a situation within the water environment where children are perceived both as 'claim right' holders and 'duty' bearers at the same time.

A 'right' is a nature due, a moral claim or a legal entitlement (Falase 2003). Modern human rights law identifies all human beings as claim right-holders simply by reason of our humanity, while States are identified as the principal duty bearer in their respective countries (Moser and Norton 2001). However, a claim right can be held in 'personam'—rights held against some specifically identified duty holder or in 'rem'—rights held against no one in particular, but apply to everyone (Fagan 2005).

UN's human right conception of independent and rights bearing 'children' with apparently no obligations is encouraged amongst the children of the elite, and/or those living in piped households or own private water points. The children's 'interests' in water as a biological necessity for sustaining life serves to ground their claim right to water (United Nations individual rights and entitlements approach).

Study findings show that for children with direct access to water (piped households), a claim right to consumption and use of water is held 'in personam' and in their understanding, government and parents are the duty holders to ensure their constant and uninterrupted access to water (See pilot study 2).

In opposition to the United Nations Human Rights conception of children as independent and rights bearing individuals, what was applicable in households without direct access to water (un-piped households) is a traditional social conception of 'children' embedded in and subordinate to family units.

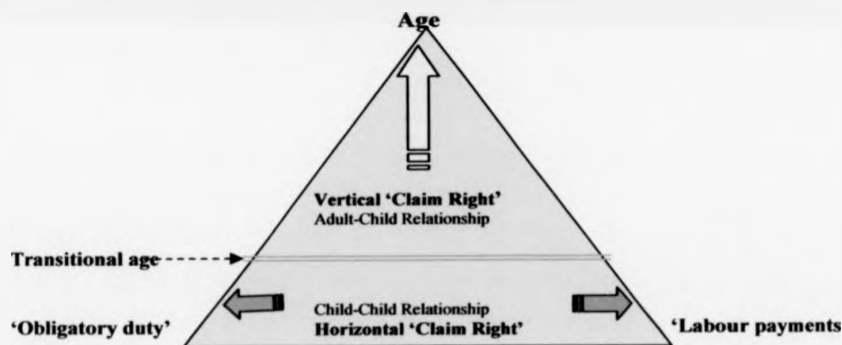
The African traditional social custom and practices places the welfare of the extended family above the 'interests' of the individual (Ogbuagu 1994; Pearce and Falola 1994; Akinseye-George 2001). 'What is certain is that the interests of the child are considered, in custom, to be subordinate to the interests of the family and society' (Belembaogo 1994), with a different notion of the 'good child' as well as an alternative definition of his or her rights (Boyden 1997).

Concept of the 'good child'

Starting from the social constructionist premise that 'the child' is not a natural category, James and Prout noted, 'that what a child is and how childhood is lived is structured by adult's norms, aims and culture' (James and Prout 1997). Findings from the present study reveal that the idea of work was internalised early in the lives of children living in un-piped households. From the standpoint of children, fetching and carrying household's water is the duty and social role that 'good children' are expected to perform.

The notion of the 'good child' within the water environment of children is linked to participation in household's water collection. In terms of children's right of consumption and use of household's water, study findings reveal that two types of rights are operational at the household's level. An age related 'vertical claim right' and a duty related 'horizontal claim right'.

Figure 4: Traditional Pyramid of Rights to Household's Water



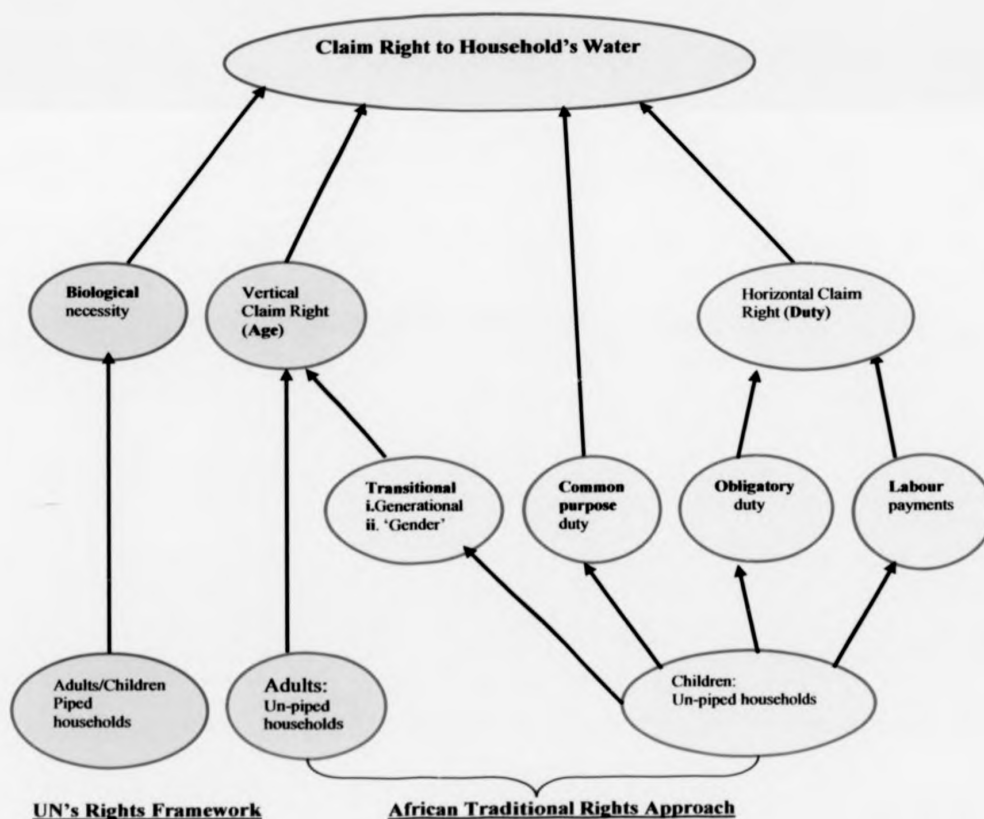
In terms of the right of access and use of household water in an adult-child relationship, an age related vertical claim right to water operates (inter-generational claim right). The older you are the more unchallenged vertical 'claim right' you have to household water.

In child-child relationships, a duty related horizontal claim right operates (intra-generational claim right) while the 'vertical claim right' due to age as it applies to adults is overruled. Thus the responsibility and fulfilment of water collection duty confers a 'horizontal claim right' and control over water fetched on that

child than on other siblings that did not participate in water collection amongst children that have not attained the 'transitional age'.

Attainment of the 'transitional age' is marked by changes in the rights status from the 'horizontal' to the 'vertical' claim right to household water. It is however interesting to note that the African traditional rights system in one aspect is similar, but in others different from the United Nations human right approach to household water. To illustrate the different 'rights' pathways, an analytical model of the United Nations approach and the African traditional rights approach to children's rights as practiced in the water environment of the two study communities is presented as Figure 6.

Figure 5: Conceptual Analytical model



According to the UN's theoretical approach, the biological necessity of water for sustaining life serves to ground a person's claim right to water (adults and children alike with apparently no attached responsibility). Similarly, in the African traditional rights system, your position as an adult in a household without direct access to water (un-piped household) serves to ground your claim right to household water (without any responsibility in terms of water collection attached).

Findings from the current study suggest that a different arrangement is set up for children living in un-piped households. As stated earlier, the responsibility and fulfilment of water collection duty confers a 'horizontal claim right' on children that have not attained the 'transitional age.'

However, there is an interesting modification to the socio-cultural practice of transitional age. As study results in chapter four has shown, religio-cultural restrictions in the mobility of women and girls of marriageable age within the public domain resulted in a situation where girls attain the transitional age earlier than boys (gender related transfer of responsibility). Thus in this religio-cultural arrangement, girls acquire the vertical claim right to household water earlier than boys of the same age in un-piped households.

For children that have not attained the transitional age the African standpoint that there can be no rights without responsibilities applies. It is therefore the fulfilment of the 'obligatory duty' of water collection that bestows the 'horizontal claim right' to household water, especially when water is fetched free of charge from the source.

There are exceptions to this African conceptual approach to household's water claim right. In situations where the stored water serves common family purposes or collective interests, for example, cooking family meals, the horizontal claim right as it applies to water collection is overruled for children that have not attained the transitional age but are responsible for these duties.

Modern developments within the water sector (particularly the commodification of water) interacting with traditional socio-cultural practices has resulted in a new invented tradition amongst disadvantaged urban communities. In the present study, an interesting finding with regard to household's water access is

children's understanding of the implication of their economic dependence on adults, when water had to be purchased with money.

Since children don't contribute to household's income and adults provide the money to buy water, in their understanding, meant children's access to household's water, may be secured by 'labour payments' through fetching and carrying household's water. This introduces a new dimension to the 'universality' of the human right to water discussion with implications for children's consumption and use of water, particularly in communities that rely either entirely or partly on water purchased from water vending locations.

Excerpt 42

- 151: I: But you don't know why children should be doing the water collection?
152: R: I do
153: I: Please tell me
154: R: Because we (*children*) don't work to earn money⁸⁶

(3) Government's role in ensuring the equitable distribution of services.

The situation in disadvantaged urban communities may be further complicated by the World Bank's current call for a demand-based approach to water provision. In the demand-based approach, the 'duty' to secure a community's 'claim right' to water is determined by that community's economic demand for water. It is now the duty of the community and not that of government, to determine its level of service vis-à-vis its 'claim right' to water.

However, 'privatising' human rights in this manner tends to overlook the fact that 'individual's ability to exercise their duties is, to a large extent, determined by their own personal financial circumstances' (Nicol 1998). As presented in the study background, Asaba in Delta State is a small town with a public water supply that was rapidly overwhelmed by the influx of population during its creation (Osadebay 1985; Ministry of Information Asaba 1996). The new State government responded by prioritising the provision of private boreholes to supply water to the residences of top government officials.

⁸⁶ Document OBS 7-10

Within the context of the state government's apparently 'passive' role as an institutional duty bearer for the provision of water to other town residents, individual households were forced by circumstance to become duty bearers. The rich and elite resorted to self-supply while the public water scheme that supply the poor communities deteriorated leaving poor households to fend for themselves. As in other settings, children bear a disproportionate part of the resultant effects as the current study findings have demonstrated.

Chapter Six—Section Two

Conclusions and Recommendations

As presented elsewhere, this thesis was initially directed at exploring children's views on selected urban public utilities provision and related health impacts following the creation of Delta State. The decision to focus on the role of children in urban household's water provision was inspired by the outcome of a pilot that suggest that children's experiences and health concerns in providing water for households are habitually overlooked by most adults.

These raised a number of issues that include; what constitutes a 'normal' task for children? Whose view of 'normal' task is being applied? In this section of the document, I present my conclusions based on the current study findings under the following headings; Work, Power, Ethics and 'Who decides?', before concluding the chapter with recommendations for further research and the lessons I have learnt from carrying out this study.

Work

Water collection as 'work' involves a number of interrelated actions that include; picking up a water container and carrying it empty over a distance to the water source. Collect water with it at the source and carry it this time filled with water, over the same distance back to the house. The duration of the process, in terms of the number of water collection trips, as revealed by the findings from the current study, is determined by household's water requirement and the quantity of water transported per trip.

Children's work and household's socio-economic status

Findings from the two focus groups that were formed based on geographical location and involving children from high/middle income, low density areas and low income high density areas reveal that children's work and activity status in household's water provision in Asaba appear to vary with the types of water sources and the socio-economic status of the household's concerned.

Water sources identified by children from the high/middle income low density areas include; the public network with in-house connections, self-supply boreholes, water tankers that supply household's storage tanks and fetching water from neighbours. In terms of physical accessibility, this reduces the distance that water has to be carried and it usually takes less than five minutes in most cases. The task of fetching water only becomes marked when normal supply is disrupted by public power outage and households resort to the use of stored water.

The situation was different for children from low income high density areas. Household's water sources include; yard taps; the river Niger, water purchased from private boreholes and packaged drinking water purchased from local vendors. Several families usually share one-yard tap resulting in frequent damage due to fights over turn to fetch water. Water supply is intermittent and taps run for about four hours a day. Supply is further disrupted by local power cuts. When taps stops running, children walk to distant sources buy water from privately owned boreholes at additional costs. Children from families that cannot afford this increase in the cost of water go down to the river to fetch water

Children's work and activity status

Field observation tagged 'a working day in the life of a child' provide evidence that children's water collection task is carried out along with other household's chores. Results from the current study reveal that many children work by 'lending a helping hand' in their own homes with preparing meals, washing the dishes in addition to collecting water for household's consumption and use. However, combining water collection and hawking of packaged water after school hours appears to place considerable stress on children's time.

Water service level also has implications for children work in household's water collection. Adela provides an example of how time saving may prove beneficial for children. Due to the installation of a yard tap in her compound, the task of water collection was made considerably easier and she spent the least time when compared to the other children living in un-piped households, on water collection leaving her with enough time to play and complete her school assignments.

Whose work is it to collect water for domestic household use?

Although children are usually referred in most documents on household's water collection as an undifferentiated collective, findings from field observations, field interviews and focus group discussions with children in the current study reveal that two major factors strongly influence the decision on who takes up the work of household's water collection.

Firstly, the different developmental beginnings and their interactions with socio-cultural practices manifested in the types of informal sector and household's division of labour with regard to water collection that developed within the two study communities in response to the failure of the public sector.

Due to the socio-cultural and religious practices of the predominantly Muslim Hausa/Fulani ethnic group that restricts the mobility of women and 'unmarried' girls within the public domain created in one community, a situation where the domestic water collection work of 'women and unmarried girls' was replaced by the commercial activities of male water vendors resulting in what may be described as a 'gender' related transfer of the work of water collection in response to the failure of the public sector.

For the non-Muslim community residents, distance and time spent at the water source appear be the factors that influences parent's decision to pass the responsibility of water collection to children, thus highlighting a 'generational transfer' of the 'work' of water collection.

Secondly, generational issues between children within same household also influence the decision on who takes up the work of water collection. Field data show that older children (16-17yrs) are not actively involved in domestic water collection. This suggests a sort of 'transitional age' when a child is either considered or considers him/herself too old for the work of domestic water collection—an age related transfer of responsibility. Transitional age, as presented elsewhere, may be attained long before a child is 18yrs and varies between households and between communities. Factors that influence the attainment of the 'transitional age' include: 1. the number of children in the household and 2. The age distribution of those considered 'eligible' to carry out the task of water collection.

On one hand, a child's 'transition' from water collection duty may be delayed when younger household members are considered either as too young or no

younger household member is available to take up the task. In these cases, the task of water collection may continue well past the age of 18yrs.

On the other hand, the attainment of the age of transition may take place as early as 15yrs in households with a good number of younger household members that are considered old enough to take up the task of water collection.

While religio-cultural restrictions may complicate field data on older girls in this study, the fact that boys of between 16-17yrs act as Mai-ruwas (water vendors) in one study community and are actively involved in car washing and commercial laundry activities around boreholes in the other study community, are suggestive of a sort of 'transition' from domestic water collection to commercial water related activities.

Children's work in household's water supply and distribution

The essential role that children play in household's water provision and distribution is evident in the operational pattern of community water vendors. Commercial borehole owners in one study community adopted an operational system that was adapted to the activity pattern of children. Data from field observation show that water vending business peaks in one study community between 7am and 8am and between 5pm and 9pm. Sale of water virtually closes down in the afternoons in most areas of the study community, corresponding to the periods when children carry out their water collection duties before and after school hours.

Past studies focus essentially on the economic incentives of water vendors. The current study while supportive of an economic motivation in the activity of water vendors, however suggest, that in addition to the economic incentive, religio-cultural factors also influence the activities of door-to-door water vendors as well as the activities of women and girls in household's water collection.

The religio-cultural restriction in the mobility of women and girls within the public domain affected their participation in water collection in situations where household members had to fetch water from sources outside the immediate environment of their households. Thus, their domestic water collection work within the public domain was replaced by the commercial activities of male water vendors.

Traditional socio-cultural practices also affects the charge pattern at the water vending locations when either children of 5yrs and below are involved in the work of water collection or in cases where small volumes of water are involved in the transactions. Field data revealed children of five years and below may be permitted to collect water with very small containers of about 2litres free of charge. Field observation also show that there is provision for a 'free' drink of water for everyone whenever the need arises, provided a cup or bottle was used to collect water.

This 'charge' pattern highlights the importance of traditional socio-cultural practice and value placed on water. Water is considered an 'economic good' at certain volumes, but for relatively small volumes, the view of water as a 'free good' comes into play. The charge pattern is therefore an attempt to balance the current economic view of water with the view of water in most traditional African communities that is hinged on the concept of water as a 'free gift' from God.

Children's own understanding of the work of water collection

Findings from field interviews and focus group discussions offer a unique insight into how children understand their work of water collection. From the perspective of children, water fetching as 'child work', is appropriate and an act or course of action that is exacted of children by social custom.

In addition, they believe that adults have had their share of water collection when they too were children. In this regard, the responsibility for household's water collection is linked to the notion of the 'good child.' It was therefore considered rude and inappropriate in this setting, for children to be seen 'sitting around' while adults carry out the task of water collection.

Thus, fetching and carrying water is perceived as a socially desirable activity and the fulfilment of the 'obligatory duty' of water collection demonstrates respect, obedience and loyalty to the established traditional social formation. This social arrangement, in contrast to the concept of a 'work free childhood', enabled the idea of work to be internalised early in the lives of children.

In terms of appropriateness of their social role, majority of children within the two study communities believe their role is appropriate. Three issues were

highlighted to back their claims. 1. Duty to the family. 2. Lending a helping hand and 3. Meeting household's water needs.

Majority of children in the current study expressed the views that they 'like fetching water' or 'enjoy fetching water' because it is the duty and responsibility of children. In their understanding, children who actively participate in household's water collection are regarded as 'good' children by adults.

While the phrase 'like fetching water' within their 'world of water' may be linked to the fulfilment of the social role expected of 'good children', some children however 'don't like fetching water' because 'it's a hard job', other family members don't participate and the feeling of weakness and exhaustion that is associated with task. These imply that these children do not find the work of water collection pleasant.

A number of inter-related factors that are involved in the water fetching process underpin children's point of view on their experiences. These factors include, the type and size of water container, method of carrying water, distance to the water source, type of water source, time spent on the task and disruptions in local public power supply.

Water Container Size

The size of the water container is a significant factor in children's task assessment. Some children complained about the weight of water they had to carry particularly in cases where the method of transportation is either on the head or by hand. Some amount of energy is definitely required to lift the water vessel unto the head, wheelbarrow or pushcart even in cases where mechanical assistance was adopted.

Older children in the family are expected to carry bigger water containers when compared to younger siblings as they are perceived to be stronger on account of their age. Thus age plays an important role in the size of container and subsequently the quantity of water a child is supposed to carry. Some described the situation where children are made to carry more than they can bear in weight of water either as 'punishment' or 'bondage' and blamed such cases to situations where children live with non relatives.

Method of Water Transportation

Out of the three methods of transporting water reported in this study—carrying water by hand using the vessel handle, on the head and the use of mechanical assistance such as wheelbarrows or pushcarts—those that fetched water by adopting one form of mechanical assistance or the other appear to find the task much more pleasant than those who carry water on their heads or by hand.

Nature and Size of Household

The nature and size of Household also plays a significant role in children's task assessment. Study results reveal that the participation of other household members and the size of the household appear to influence the children's assessment of the task of water collection. Children whose older family members join them in water collection reported that the task was 'easy', regardless of family or household size. Thus household or family member's participation appears to positively influence children's task assessment.

Children that reported the task of water collection as 'not easy' are those who had to undertake the task of water collection without the help of other household members and in these cases, the family or household size was reported as five or more members. Thus household size appear to influence the children's task assessment in situations where other household members did not participate in water collection

Findings from the current study further reveal those children who reported the task as 'easy' without the help of other household members are noticeable cases where the family size was reportedly less than five members. Thus other household member's participation in water collection and a small family size positively influence the children's assessment of the water collection task, while non-participation of other household members and a large household or family size negatively influence children's assessments of the task of water collection.

The reported cases of the non-participation of other family members in this study may be attributed to three major factors: household member's age distribution, the division of labour within the household and make-up of the household.

a) Age distribution

Household member's age distribution play a vital role in task assignment and in the decision on whether or not others should assist those charged with the task

of water collection. Family members who are regarded as too young may not join the older children to fetch water, while children who are considered 'too old' to fetch water are also exempted from the duty of water collection. This 'transition' age, as presented earlier, varies from household to household.

b) Division of labour

Another factor that influences household member's non participation in water collection is the division of labour within households. The duty of water collection may be assigned to a particular member irrespective of gender. A lower age limit which varies between households may be taken into consideration in task assignment; however the upper limit is dependent not just on age, but on other factors such as adult-child ratio and age distribution (household's make-up).

c) Household's make-up

Household's make-up, particularly the adult-child ratio strongly influences the decision on whether or not other household members will participate in water collection. Families with only one child or old families where all other older children have left the house, account for some of the cases where a child had to undertake the task of water collection without the help of the other household members.

In other situations, the oldest child in a young family may be the only one considered 'eligible' to fetch and carry water. In such cases, the younger sibling may be asked to undertake home bound' duties while the older child may take up tasks that are undertaken within the public domain.

Children's views on the commodification of water

Children's traditional social role of water collection and bearing in cotemporary disadvantaged urban setting appear to have taken on an economic dimension in household's transition from public water supply to privately owned water sources. The commercial activities of private borehole owners appear to have exposed children early in their young lives to the realities of water supply that is dependent on household's ability to pay.

Two issues are of primary concern to children. The first is the financial impact on family income of having to purchase household's water supply from vendors

while the second is the economic realities of water vending in their communities.

Findings from the current study suggest that an acceptance of the economic realities of household's water supply, form part of the basis for the reported 'like to pay for water' in the children's accounts. The verb 'like' in their 'world of water', does not mean finding the condition that necessitated paying for water 'agreeable' or 'enjoyable' but more of an acceptance of the inevitable.

A new dimension was also introduced to the concept of child work in disadvantaged communities particularly where households had to buy and carry water from vending locations some distance away from their homes. From the standpoint of children, since they do not earn money and adults provide the money to buy water, children's 'work' of water collection is perceived as an appropriate 'labour payment' for their economic inadequacy.

Children's work and reported health implications

Children water collection activities in the two study communities take place in the public domain. For this reason, fears were expressed by children that arguments over turns to fetch water may result in fights with bodily injuries. Falls and bodily injuries as a result of the hazardous surroundings of water sites is also a major cause for anxiety. Fears were also expressed over the risk of children drowning in the river and sexual harassments of girls visiting some privately operated boreholes while out to fetch water for their households.

In their water environment, each household rather than government is responsible for its own water safety. Some water boreholes supply poor quality water due to lack of supervision and standardisation of drilling sites. Thus each household is left to decide which water source supplies safe water with implications for public health. In the choice of water source, water supplied via yard taps is believed to undergo proper water treatment when compared to water fetched from boreholes.

A number of clinical symptoms and physical signs relating to children's degree of involvement and method adopted for carrying water were reported in this study. These include physical weariness resulting from exertion, general body aches, chest pain, headaches and neck pains.

The concept of appropriate work

Findings from the current study also provide an insight into the concepts of appropriate with regard to the activities of children in household's water collection. According to the International Labour Organisation (ILO), child labour refers to situations where children are engaged to perform domestic tasks in the home of a third party or employer that are exploitative (International Labour Office 2004). This definition thus excludes children who do the same amount of work under similar conditions in their own homes.

When the children in the present study were presented with ILO's definition of child labour, they described household's water collection task as 'child abuse' even when carried out within the context of their own homes, not in terms of economic exploitation, but in terms of the labour exploitation of children, the inconveniences of forced water collection and the loss of children's right to rest and recreation. The major implication of these findings is that the concepts of 'appropriate work' in household's water collection, as defined by adults appear to differ from that of children.

Power

Power is a complex subject and is referred to in many different contexts. Some have described power as the ability of individuals or groups to make their concern count even when others resist (Robinson and Kellett 2004). Since this study focuses on children's issues of concern in household's water provision, the study to a large extent is about the power relations between children and adults in households without direct access to water.

The exercise of adult's power and the absence of children's voice in decisions on the organisation of household's water provision is highlighted in the UN's document on the protection of children involved in water collection activities. The document placed much emphasis on water outlets being at a 'reasonable distance' from homes when children are involved in water collection.

Findings from the current study however reveal that what was uppermost in the minds of children is the daily toil of water fetching, the repetitive water collection journeys and the resultant weariness following the completion of the task.

Household's water collection and the exercise of adult's power

Power relations in the traditional African setting are reinforced by the general cultural notions that exist between children and adults in the society and age plays an important role in the power you have to exert your rights (Belembaogo 1994; Ogbuagu 1994). Thus children's 'interests' in terms of the consumption and use of household water, in this traditional social arrangement, as the current study revealed, is subordinate to the 'interests' of adult members of the household on account of age. This provides an insight into the position of children (in household's without direct access to water) who have limited power and rights in their private family life.

Findings from focus group discussions with children during the pilot phase of the current study reveal that 'good children' are not expected to complain or grumble over the existing traditional social arrangement of household's water collection, use and consumption, thus limiting children's expression of their feelings or concerns with regard to the management and use of household's water.

Within the two study communities, findings from the initial field observation also reveal that the limitation of children's power and rights extends from the private family life into the public domain. The superior 'interests' of adults over children extends to the communal water sources if and when, they decide to fetch water. Adults are not supposed to queue for water behind younger children. Children for their part are supposed to respect them by giving up their turn to fetch water. As a result, children spend comparatively longer 'waiting times' when compared to adults at the water sources.

These initial findings have implications for me as a researcher looking into the issues of children as they may be reluctant to express their true feelings firstly, to an adult and secondly, to a 'stranger' in the subsequent field interviews and focus group discussions with children which I had planned to undertake.

Detheridge suggest that 'the freedom to communicate will depend not only on the availability of appropriate communication mechanisms and sensitive interpretation, but also on the power relations in the exchange and attitudes established over time' (Detheridge 2000).

In order to minimise the power relations between me and the children, I started the fieldwork with a period of trust building contacts that lasted for several months within the two study communities. During this period, I mingled with the members of the community, particularly those children that were actively involved in water collection before moving on to data collection.

Generally, I arranged to conduct the interviews at a pre-arranged time and place with the consent of the potential interviewee. However, some children were interviewed right there at the water source immediately after their recruitment into the study in accordance with their wishes.

I adopted an approach where children 'opt-into the study' because it placed children in the position to overturn the power-balance by dictating the timing and direction of the study. If on the other hand, I had started the recruitment from schools, out of fear or respect (for adults—particularly when my request has the support of their school teachers), some of the children may find themselves in the difficult position where they may not be able to 'opt-out' of the study even when they desire to do so.

I adopted and used a focus group discussion that started from a formal phase into an informal phase. During the informal phase, participants discussed amongst themselves (while enjoying their refreshments) those issues that were uppermost in their minds. Throughout this informal phase, I left the audio-recorder running with their consent. I wanted to create an atmosphere where the children will be free to express themselves without the usual African adult-child cultural restrictions where the adult is always in charge (Ogbuagu 1994). I also embarked on a child-led tour which I hoped put the reigns of power on children to determine what was important to them within their local environment.

What is apparent from the findings in the current study of household's water provision and child work is the exercise of adult power in this area. The absence of children's voice in decisions about the organisation of household's water provision goes against concept of children as social actors with the right to a voice. As Taylor noted, it is adults who write about and debate the issues of rights of children and this might be seen as indicative of the power relations which confine children to subordinate roles in their societies (Taylor 2000). This subordinate position of children is evident in the operations of the vertical and horizontal rights system of rights to water stored within the household.

Vertical and Horizontal Claim rights to household's water

With regard to children's right to household's water in terms of its consumption and use, study findings revealed two types of rights. An age related 'vertical claim right' and a 'horizontal claim right'. An age related vertical claim right applies in the relationship between adults and children within the same household, in terms of access and use of household water (inter generational claim right). The older you are the more unchallenged 'claim right' you have to household water. This traditional social arrangement of water consumption and use, in most cases leaves very little water for children to meet their own personal needs. It is this vertical claim right of age that limits children's expression of their feelings or concerns over the use of household's water although they actively participated and in most cases, are the ones assigned the responsibility of water collection.

Children's 'powerlessness' appears to be more marked in cases where the task of water collection is perceived as difficult. Children intentionally cut down on

their own water requirements in order to leave enough stored water for adults. By making personal sacrifices, they hope to reduced both the burden and time spent making extra water collection trips to make up the deficit in household's supply.

Between children from the same household (Child-child relationship), the responsibility for water collection confers the horizontal claim right and control over water fetched (intra generational claim right). In terms of personal consumption and use of household's water, children who participate in water collection have more control over water that they fetched than other siblings who did not participate in water collection. Exceptions to this unwritten rule of household water rights are children that have attained the 'transitional age' and children that are assigned to duties where the stored water serves common family purposes such as cooking family meals, etc.

Household's Socio-economic status and children's access rights.

Findings from the current study reveal that children's access to household's stored water may be restricted because of the fact that their household's had to pay to have access to 'safe' water at the point of use. Three major categories of household's based on the different levels of economic activities that may influence children's access to household's water were identified.

Category 1

Households that do not pay for water at the point of use (direct access) and children had free and unrestricted access because water was supplied via in-house connection or had water points located within their compounds. Membership of these households therefore confers automatic 'claim right' to water on Category 1 children.

Category 2

Households that had free access to relatives or friends water points (indirect access) but sometimes pay to fetch water from alternative sources. The unrestricted access to household water that children continue to enjoy, even when water is sometimes purchased from alternative sources is, from the perspective of children, due to their participation in water collection. Thus, it is

the participation and fulfilment of the 'obligatory duty' of water collection that confers the 'claim right' to household's water on Category 2 children.

Category 3

Households that always pay for water at the point of use (households without access to safe water). As in Category 2, participation in water collection 'confers' the 'claim right' to household's water. The exercise of this right by children in Category 3, may however be restricted by factors, such as cost of water, physical accessibility and household's water management.

Ethics

Ethical issues pervade this study right from its proposal, through the fieldwork to what to do with the study results. In this concluding section of the document, I will only focus on the major experiences.

Study Proposal

The appointment of an ethics committee follows the submission of a proposal for field study. The ethics committee set up by the London School of Hygiene and Tropical Medicine insisted on having written documents from both the local ethics committee in my country as well as signed documents of informed consent from parents (or guardians) and study participants. This from their perspective will indicate that they have accomplished their role of protecting the potential study participants. However, this stance appears to have overlooked the contextual issues involved in conducting a study in a different political and cultural situation.

Since no official ethics committee was in existence in Delta state, I applied to the ministries and education and that of youths, sports and culture. It took some time to convince the ethics committee appointed by the London School of Hygiene and Tropical Medicine that their 'local' counterpart does not exist in the new state where the study was to be conducted. In addition, the ministries of Education, Health and 'Youths, Sports and Culture' had to set up an 'ad hoc' ethics committee to examine and approve the study. Members of the London

school's ethics committee however insisted that ministries are not competent to approve the study and suggested that 'surely, a local ethics committee must exist somewhere in your country'.

While obtaining an approval from an ethics committee outside Delta state may satisfy the criterion of the committee in London, it will however not meet the demands of the local administrative institutions. The commissioner of education and that of the youths and sports in my state will not permit any form of research to be conducted within the schools or community in the state without their own approval. It was at this point that the ethics committee appointed by the LSHTM reluctantly gave its approval for the study to be conducted thus bringing this contextual power issue to an end.

Fieldwork

There have been many discussions around information, consent and competence in research with children. Ethics guidelines advise obtaining the parent's consent in research with minors under 18 as well as minors consent (Alderson 1999). Masson suggest that it may be more ethical to act on the child's consent than to require the fully informed consent of a parent, where a child can 'understand enough to distinguish research from other interventions and to understand the impact on them of participating'. In her words, 'such an approach will give children the maximum opportunity to have their views and experiences recorded and avoid the exclusion of children whose parents would not respond to a request' (Masson 2004).

To overturn this power balance between adults and children, the approach I adopted in this study was to obtain the consent of children first, before approaching their parents or guardians in order to avoid the situation where children may be persuaded to participate in the study by their parents or guardians against their wishes.

My experience from the earlier pilot studies had shown that most of the participants were wary of any form of signed document. However, the London ethics committee insisted that consent forms must be prepared and signed by both parents and study participants. My approach to the problem was to prepare some consent forms for parents and children to sign, while permitting them to give oral consents should they refuse to do so.

Study Results

Another important ethical issue in this study is what to do with the study findings. The children perceived my position as an adult and a researcher in terms of power to bring about social change. This was evident during the discussions with the children at the end of the interview and group discussion sessions.

Study findings also reveal that children from poor un-piped household in disadvantaged communities are those that are actively involved in water collection and bearing. The children of the elites and policy makers are not directly involved in water collection. This has implications for children from disadvantaged homes as social actors with the right to a voice since the poor in the society are usually the most disempowered.

The current study, being the first opportunity presented to children within the study communities to air their views on household's water collection, is perceived as a medium to communicate their concerns and requests to the appropriate authorities with the hope that something could be done to improve their situation. This therefore placed me in a difficult position and I was vividly reminded of Scott's advice that 'researchers should be aware of the authority position that adults hold with children' (Scott 2000).

It was then that I resolved not just to conduct a study for children to express their views—as I had earlier intended—but to pass the study results over to the Ministries of Health, Education, and 'Youths, Sports and Culture'. This, I hope will carry their 'voices' to the appropriate institutions.

Carrying their 'voices' to the appropriate institutions is one thing, getting them to act on it is another. The children of those in positions of authority do not experience the problems of the participants in this study as they are not actively involved in household's water collection. This has several implications.

Firstly, there may be marked inertia on the part of those in authority to commit time and funds in into the issues of children in disadvantaged communities in the face of other competing political demands. Secondly, all efforts and time of parents and other adults living in these disadvantaged communities are focused on the struggle for daily survival.

Thirdly, the traditional socio-cultural system involved in household's water collection that breaks up the ranks of children into those that have attained the

'transitional age' and those that have not, undermines the power of children to speak with one voice.

Lastly, the children that are directly affected can hardly make changes on their own since adults hold the reins of power. They can neither run for any political office/political positions of influence nor can they vote to elect politicians that are responsive to their needs (Driskell 2002; Bartlett 2002a).

Who decides?

Three major stakeholders may be identified with regard to the activities of children in household's water collection. At the international level, the United Nations human right to water vis-à-vis the CRC. At the regional level, the African Charter on the welfare of the child at the heart of which is the African traditional rights system. Finally, at the household's level, are the children that are directly and actively involved in household's water collection. Since each of these three stakeholders has its own stance on the expected role of children, as well as what it considers the appropriate work for children in household's water collection, who then decides?

According to the United Nations framework on the human right to water, it is the 'interest' of an 'individual' to water as a biological necessity the gives it the claim right to water (United Nations Economic and Social Council 2002). At the heart of the human right framework, is the ideological emphasis on 'individual rights', 'entitlements' and a work free childhood (UNICEF 1989).

In opposition to the United Nations Human Rights conception of children as independent and rights bearing individuals, the African charter on the welfare of the child gives emphasis to 'collective rights' and 'responsibilities'. The African position is that *'there can be no rights without responsibilities'* (OAU 1990).

Children for their part—based on the findings from the current study—while believing that their role in the social organisation of water supply and distribution is appropriate as it helps their families to meet the water needs of their households, however expressed concerns over the daily toil of water collection, the repetitive water collection trips and the weight of water children have to bear while carrying out the task.

As an instrument of research, I am not in a position to decide who is right and who is wrong. Nevertheless, the United Nations attempt to incorporate cultural diversity in its human rights framework (African and Asian—to ensure its universality as well as meet the expectations of critics of a 'work free' childhood), appear to have led to a situation where a different 'rights system' outside its universal framework operates for children in household's without direct access to safe water.

The reported accounts of children in the current study show that two different sets of rights system exist both at the community and household levels. At the community level, the United Nations framework of rights applies to children living in piped households (mostly wealthy homes—membership of which confers 'automatic' 'claim right' on children.), while the African traditional social rights system applies to children living in un-piped households.

At the household level, another set of rights (vertical and horizontal claim rights to water) that are interwoven and embedded in the African traditional right system operates between adults and children within un-piped households. In this traditional set up, it is the fulfilment of the obligatory duty of water collection that confers the 'claim right' to water on children that have not attained the 'transitional age'.

In conclusion, current study findings do have implications for the UN's approach to the rights and protection of children involved in household's water collection in the South. Firstly, the concepts of 'appropriate work' as defined by adults appear to differ from those of children that are actively involved in water collection.

Secondly, children in poor households without direct access to safe water supply, by having a separate 'rights pathway' in terms of 'claim right' to household water appear to have been excluded from the UN's 'universality' of rights framework.

In this regard, a better understanding of the traditional socio-cultural practice and value placed on water, as well as the inclusion of the perspectives of children that are actively involved in water collection are necessary in order to

achieve children's rights and health in terms of the consumption and use of household's water in disadvantaged urban communities of the South.

Be that as it may, I make no assumptions that the current study findings will have an immediate beneficial impact on the rights situation of children living in disadvantaged urban communities. However, cultural practices are subject to constant changes as old practices are continually modified and new ones invented.

While the lives of children living in the two study communities may not be directly influenced by the United Nations declaration on the right of water, changes in service provision (as study results have demonstrated) can bring about role and attitudinal changes that will facilitate children's unconditional exercise of their claim right to household's water.

This may be translated to mean that the exercise of the claim right to water by children from un-piped households, which is to a large extent restricted by water availability, can be facilitated through the provision of enabling conditions (yard taps, hand pumps etc) by government, NGO's and other stakeholders.

Further research

Although this thesis provide insights into children's perceptions of their role and how they understand their rights in household's water provision, this study has only scratched the surface of the issues involved. Over 60% of the estimated 120million Nigerians live below the poverty line (Federal Government of Nigeria 2000) and half of this population are children (UNICEF-Nigeria 2001). Research on the views of children on water provision in disadvantaged households in Nigeria is still very sparse.

While the present study provides evidence of children's involvement—in terms of what children do, how they do it and for how long—there is a need for further research to determine their degree of involvement in terms of the population of children that are actively involved in household's water collection. This is important as the last decade has witnessed a marked increase in the population of urban residents and a progressive fall in the percentage of urban households that are connected to the public water network in Nigeria (WHO and UNICEF 2004b).

Past studies suggest that carrying heavy loads of water apart from it's nutritional demands has a great impact on bone developments in children (Curtis 1986; Dufaut 1988). Participants in this study reported a number of the symptoms that may be linked to the development of skeletal deformities. There is therefore the need for further research to provide information on the health implications of their involvement and the direct risk measurements of disease causation.

Work that is more detailed is also needed for surveillance strategies in the early detection of skeletal abnormalities amongst children that are actively involved in water collection. Surveys are needed to provide information not only on water provision and disease prevalence, but also on community's cultural practices and value placed on water with regard to its distribution, consumption and use.

Deeper research into the decision-making process and into the apparent role of children is needed to fully understand the operations of the rights system at the family or household level. A more detailed stakeholder analysis on the role of government, opinion leaders and NGO's is necessary. More studies are also needed to assess the net economic burden of the passive and active privatisation of water vis-à-vis children's involvement in the distribution and sale of packaged drinking water in Nigeria.

Lessons learnt

In the process of this research, I have learnt a great deal about methods, design and technical aspects of scientific writing, the exercise of children's rights system at the household level and about myself.

By carrying out the fieldwork, collecting and analysing qualitative data, I have developed new methodological skills as my previous research (MPhil) was undertaken using a quantitative approach. The fieldwork-based qualitative research encouraged me to focus on the ongoing roles that children play, their perceived difficulties and meanings they attach to their lives.

These insights led me to conclude that a better understanding of the traditional socio-cultural practice and the value placed on water is necessary in order to achieve children's rights and health vis-à-vis consumption and use of household's water in disadvantaged urban communities. It will however take a very dedicated and courageous state governor to place the issues and concerns of children on the public agenda.

I have also come to appreciate the complex social and political intricacies of public utilities provision. The very recent policy shift by the Delta State urban water board towards registration of privately owned water sources in Asaba, is a step in the right direction.

Although the board's policy thrust is essentially in the area of revenue generation, this can be extended to include supervision and regulation of underground water abstraction, periodic and continual testing of water from old and new sites in order to bring about improvements in public health.

The present study has raised a number of issues with regard to the water collection activities of children in disadvantaged urban settings. One of such issues, is the fact that there is no specific ergonomic guideline on the weights in water children in the South are supposed to carry while carrying out the task of household's water collection.

This may be linked to the fact that water collection as 'child work' or 'helping hand' activity has not been clearly classified as either as a 'hazardous' or 'non-hazardous' task. The operational boundary of the present ILO definition of domestic chores seems ambiguous when applied within the water environment of disadvantaged communities without direct access to water (International Labour Office 2004).

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Appendixes

Appendix 1: Pilot Study 1.

Introduction.

Following the state of affairs presented in the study background, a pilot study exploring children's views on selected urban public utilities provision and their related health impacts was conducted in Asaba. Fieldwork started in December 2001 and was concluded by January 2002. These two months were spent conducting focus group sessions, undertaking pictorial concept mappings⁸⁷, and holding key informant interviews. Forty-four (44) teenagers of between the ages 13 and 17 drawn (randomly selected using the lottery technique⁸⁸) from two secondary schools and five (5) street teenagers of the about the same age range participated in the study. The general aims and objectives of the pilot study were:

- To explore the difficulties that might be encountered in the field such as gaining entree into a research site.
- To explore the cognitive ability of children to participate in a focus group and concept mapping sessions.
- To explore children's views on selected urban public utilities provision⁸⁹ and the related health impacts.

Gaining Entrée into the field.

Appointments were scheduled with the principals of two schools, Saint Patrick's College Asaba (SPC) and Asaba Girls grammar School (AGGS) in December, but the pilot studies could not be conducted until January. For the street teenagers, a number of motor park's chairmen were approached for consent to conduct the study. While these chairmen displayed various degrees of interest in the study, they all expressed their lack of control over the teenagers that hang around the parks. Consent to participate in the study was sought and obtained from five of such teenagers and two of them agreed to

⁸⁷ Concept mapping is a method that may be used to clarify and describe people's ideas about any topic in a graphical or pictorial form. It can be used with non-literate and literate people to elucidate visual literacy.

⁸⁸ Lottery technique: The numbers against the names of students in the class register were written on pieces of paper starting from 1 to 307. These were placed in a ballot box and 50 were randomly picked from the box. Only 44 eventually participated in the study. The remaining 6 were absent from school on the day of the study.

⁸⁹ Selected urban public utilities such as water and sanitation; waste disposal, electricity; communication and transport were presented to the students and street children. In the focus group and concept mapping sessions, the health impacts of these selected urban public utilities as it relates to children were discussed.

private interviews after condition of anonymity was assured. Three other teenagers that were approached to participate in the study opted out, although the aims and objectives of the study were explained to them in detail. No reason was volunteered for their decision.

The Focus Group and Concept Mapping Sessions.

The group sessions were conducted in three different field locations with the researcher and an assistant acting as moderators. Two were in formal school settings (Asaba Girls Grammar School (AGGS) and Saint Patrick's College Asaba), while the third was in an informal setting (an amusement park). The discussions lasted for roughly two hours at the end of which the groups embarked on a concept mapping session that lasted for another one hour. Old magazines were used to display their concepts in a pictorial form.

Using the nominal group technique⁹⁰, to prioritize the public utilities, the participating teenagers identified and expressed their concerns on the listed urban public utilities as well as the related health and socio-economic factors. These were further explored in the subsequent concept mapping sessions to identify concepts and concerns as well as provide the opportunity for them to illustrate pictorially, concepts which language or grammar could have hindered. The realisation that even street children without formal education can successfully participate in the focus and concept mapping sessions was one of the most positive and exciting aspects of the study. Most of the participants in the three groups demonstrated increased self-confidence as they progressed through the sessions.

Exploring children's views during the focus groups sessions

Analysis of the data from the focus group discussions provided helpful insights into the activities and concerns of the participants. Their concerns, which covered various facets of urban public utilities such as sanitation, waste disposal, water supply, electricity and energy, proved to be both instructive and revealing

⁹⁰ The nominal group technique is a consensus-planning tool that helps to prioritize issues. It differs from the focus group as it attempts to identify consensus & agreeable solutions, which is different from the purpose of focus groups (Krueger 1994). Comment cards were distributed to each participant to write a list of public utilities in their order of priority. These cards were collected together and a common list was compiled from these, after a general discussion and agreement on their order of priority to health.

According to the participants, poor sanitary and waste disposal systems cause diseases like cholera and hepatitis as well as facilitate the breeding of disease vectors. The accompanying odour, they added, causes great discomfort. On water provision, the participants noted that the cans, basins, and jeri cans that are used for fetching and carrying water is a major route for the transmission of diseases. In addition, that a lot of suffering is involved in carrying water over long distances. The participants further noted that the constant oil spillage in the Nigerian oil industry constitutes a source of threat to health. The flaring of gas at the production site, according to the participants, is very dangerous to human health as well as the ecosystem.

However, there were differences between the school and street teenagers with regard to primary areas of concern. While the school teenagers were aware of broader national and international issues, the street teenagers concerns and views were linked to that of day-to-day sustenance. The school teenagers rounded up their discussions on the note that the failure of the urban public utilities to meet the population needs is not unconnected to corruption and poor management at the national and state levels. The street teenagers for their part placed the failure of urban public utilities secondary to their concerns for re-assimilation into the society. In the words of one participant, *'I go to the river or I buy water from time to time, but what I need now most is a home. A house I can return to, at the end of the day.'* Thus raising the issues of social identity and social responsibility. The connection between electric power generation and water provision was also highlighted. In the words of one of the participants: *"Water is not difficult to 'get' as there are 'bore holes' everywhere, its just that when there is power failure which can take up to a week at times, then we have to go 'far' looking for water with wheel-barrows."*

Exploring children's views from the concept maps.

All the groups that participated in the concept mapping sessions placed water and sanitation high on their priority lists, despite the differences in the use and arrangement of concepts. The maps appear to replicate the issues that were raised during the focus group sessions with regard to their concerns at the national, state and individual levels.

The school teenagers appear conscious of the events in the socio-political and policy environment. This was evident in the use of adult concepts such as:

*'Poor health care a national phenomenon'; *'Water pollution';
 *'High demand for water'; *'The need for development';
 *'Mismanagement of resources' etc.
 The street teenagers for their part concentrated on the:
 *'Lack of housing'; *'Lack of water';
 *'Working place'; *'Special soap for bathing' etc.

In addition, the school teenagers, unlike their street counterparts, separated the various issues into different conceptual areas on the maps.

Underlying most of the group discussion on water provision was the idea of the commodification of water. In the words of one of the participants; *'I like to buy "pure water"⁹¹ to drink, but I can go to the river to have my bath and wash'*. However, this area was not discussed beyond the involvement of children in the sale of water.

Comments and Conclusion

The study background presents the political transformation of Asaba into a state capital and the follow-on hasty movement of people into it. In consequence, the state government was unable to cope with the high and increasing demand for basic infrastructure such as potable water and housing. Associated with the increased demand for water, is a deteriorating public water scheme. Residents who cannot afford private boreholes had to seek alternative sources of water for household use. Several studies have reported that the burden of fetching water for domestic use in a traditional African setting falls primarily on women and children (White, Bradley et al. 1972; Mensah 1999; Hardoy, Mitlin et al. 2001). The pilot study that was directed at exploring children's views on selected urban public utilities provision revealed that children were actively involved in domestic water provision. The study demonstrated that the participants understand and have independent views on the issues that are pertinent to their communities. It also showed that the focus group and concept mapping as data collection techniques are appropriate for working with children. However, there

⁹¹ Drinking water provided and sold in small plastic sachets of about one litre are locally referred to as 'pure water.' These are considered not necessarily of a higher hygienic state to that of the water provided by local taps, but are preferred because they are usually advertised as being 'pure' and served in most cases iced, to the delight of their customers.

are some methodological issues that were raised by the pilot study such as adult moderation of children's discussion groups (Hart 1997).⁹²

The participant's views and health concerns on water supply was quite instructive. According to the participants, children's experiences and health concerns in providing water for households are habitually overlooked, or worse still, ignored by most adults. They pointed out that children were not only actively involved in household's domestic water supply, but also in the sales and distribution of packaged drinking water with severe health implications.

As a result of the participant's eagerness and depth of knowledge, a list of household's major water sources and the role-played by children in general and teenagers in particular were compiled. From their perspective, children that are actively involved in providing water for households recurrently endure joint pains, pains in the neck, chest, back and waist. General fatigues, headaches, injuries—from street fights or motor accidents and for teenage girls, sexual harassments and/or unwanted pregnancies are not uncommon amongst children involved in water vending.

The diagrammatic representations in figures 7 and 8 summarises these activities. Figure 7 shows the different categories of teenagers while Figure 8 describes their activities in fetching and carrying water to households as well as their roles in water vending. It was these revelations that inspired the present study in order to provide an insight into children's points of view.

⁹² An adult moderating a teenage discussion group. Hart in his contribution warned that the researcher should assume nothing about what children vis-à-vis teenagers want. This was particularly evident with one group of discussants, where the participants appeared cautious as if weighing what they presume were the best answers that might impress the moderator. This may however be minimised through trust building contacts prior to the main data collection. Time must be allowed to gain the trust and confidence of the participants in order to get them to participate meaningfully.

Summary of Data Sources and collection

Source of Data	Data Collection Technique	Type
<u>School Enrolled</u>	Focus group, Concept mapping, Key informant's Interview, Field Observation.	Group. Individual. Group.
<u>Non School enrolled.</u> a). 'Of--the--Street' b). 'In--the--Street' c). 'Non--Street'	Focus group, Concept mapping, Key informants Interview, Field Observation. Interview	Group. Individual. Group. Individual.

Key to the Summary of Data Sources

'School enrolled' refers to young people currently enrolled and attending school.

'Non school enrolled' refers to young people, which at the time of data collection, are either temporarily or permanently out of school. This group may be categorised as: 'Of the Street'—mostly teenagers who have been orphaned or abandoned by or run away from families and who consider the streets to be their home (Ennew 1994). While 'In the Street' refers to young boys and girls who work as vendors in the streets. These children retain contact with their families and live, however loosely, under some form of parental (or adult) supervision. 'Thus children *in-the-streets* are primarily engaged in streets trading, returning home at the end of the day, while the children *of-the-street* are truly homeless' (Wright, Kaminsky et al. 1993).

The *in-the-streets* group, as indicated in the pilot study, may not be able to participate in Focus group and Concept mapping because of the time required to conduct these sessions. In most cases, failure to meet a specified sales target might attract some punitive measures when they eventually return home. For this reason, nervousness over the possible effect of the time spent on the study and how this may possibly affect their overall sales might influence their full and active participation.

'Non-street' are the young people living with parents or guardians, who are not sent to the streets, yet are not enrolled either temporarily or permanently in any school (e.g. shop minders, school dropouts, trade apprentices etc.). The pilot study showed that persuading these children individually to leave their respective homes, to gather together for Focus group and Concept mapping sessions, is an extremely difficult and time wasting exercise

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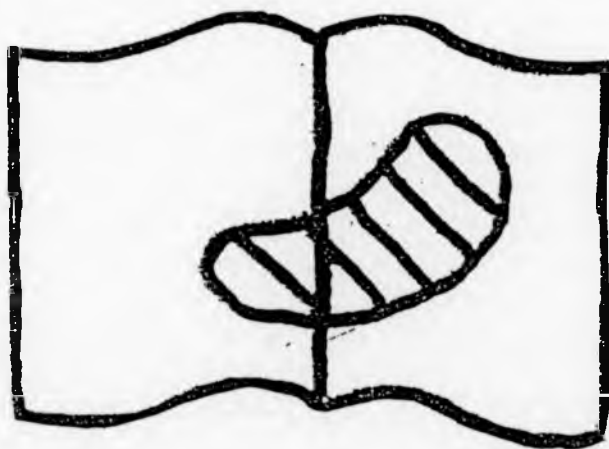
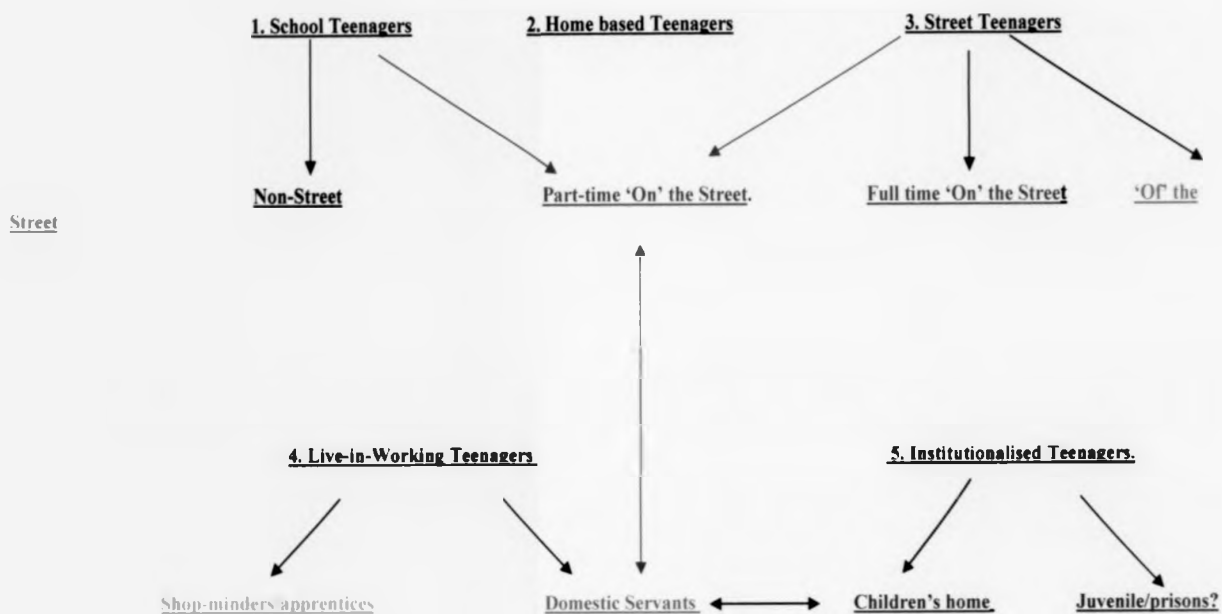


Figure 6: Categories of Teenagers Identified during the Pilot Study.



**These were documented to help in collecting data and not to explain relationships, which is beyond the scope of this study.

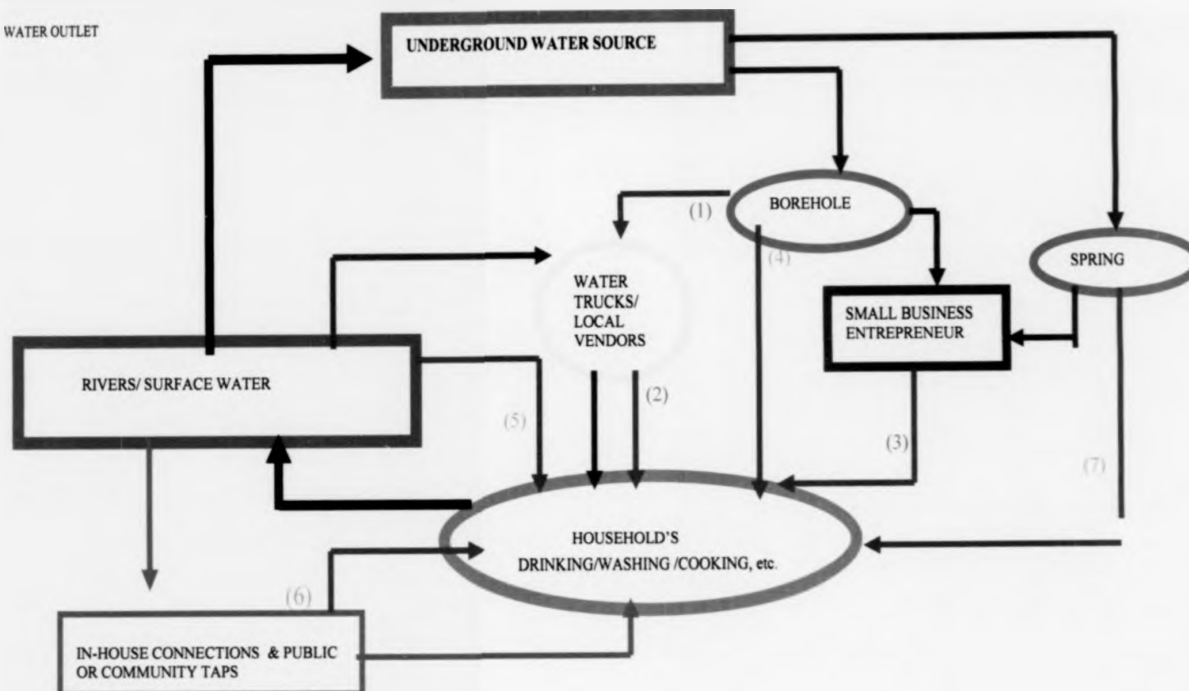
Figure 7: : Household's Water Cycle and Children's Involvement

KEY

HOUSEHOLDS WATER INTAKE WITHOUT THE INVOLVEMENT OF CHILDREN

— CHILDREN'S INVOLVEMENT IN DOMESTIC & COMMERCIAL WATER SUPPLY

— WATER OUTLET



Numbers 1 to 3 represents the use of children in various water vending activities experience health problems such as general fatigue, headaches and for teenage girls, unwanted pregnancies and sexual harassments. Physical injuries—from street fights or motor accidents.

Source: B. S. (2000). *Environmental Health and Safety in the Water Sector: A Guide to the Water Sector's Environmental Health and Safety (EHS) Management System*. Washington, DC: American Water Works Association.

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Appendix 2: Summaries of studies on quality and quantity of water

Author(s)	Year	Location	Study Goal/s	Findings/Comments
Victoria, C. G; Smith, P.G; Vaughan, J.P; Nobre, L.C; Lombardi, C; Teixeira, A.M.B; Fuchs, S.C; Moreira, L.B; Gigante, L.P; Barros, F.C.	1988	Brazil	To ascertain the effects of water supply sanitation and housing in relation to infant mortality from diarrhoea.	Those who did not have a piped water supply to their houses or their plot has a risk factor of about five times greater than those with pipe water in their houses.
Chongsuvivatwong, V. Mo suwan, L. Chompikul, J. Vitsupakorn, K. McNeil, D.	1994	Southern Thailand	Their aim was to determine whether the use of pipe water supply could significantly reduce the incidence rate of diarrhoeal diseases among under two children.	The findings indicate a statistically significant reduction of one quarter in incidence rate among the pipe water users although the results among the pipe water users varied with locality.
Genthe, B. Strauss, N. Seager, J. Vundule, C. Maforah, F. Kfir, R.	1997	South Africa	This study examined the relationship between the type of water supply and the quality of water used. Source (communal taps, private outdoor and indoor taps)	The result of the study suggests that a private outdoor tap is the minimum level of water supply in order to ensure the supply of safe water to developing communities
Molbak, Kare; Jensen, Henrik; Ingholt, Liselotte; Aaby, Peter.	1997	Guinea-Bissau	To examine a large range of possible risk factors for diarrhoea diseases using a community based cohort study	There was a strong and independent association with the type and ownership of water supply with a 1.4 rate ratio among children from families with a public unprotected water supply compared with those who used their own protected supply
Dunne, Eileen. F; Angoran-Benie, Hortense; Kamelan-Tano, Akoua; Sibailly, Toussaint. S; Monga, Ben. B; Kouadio, Luc; Roels, Thierry. H; Wiktor, Stefan. Z; Lackritz, Eve. M. Roberts, Les; Chartier, Oana; Malenga, Grace; Tooie, Micheal; Rodka, Henry.	2001	Cote d'Ivoire	To survey knowledge, attitudes and practices regarding water use and infant feeding. To evaluate the microbiologic quality of source and stored drinking water	In Koumassi district of Abidjan where municipal water was widely available and of good quality, drinking water stored in most households, was often contaminated with E. Coli and was given to children at a young age.
	2001	Malawi	The study was undertaken to assess the ability of a water container with a cover and a sprout to prevent household contamination of water in a Malawian refugee camp using a Randomised trial	Water flowing from the source wells had little or no microbial contamination although the water collectors quickly contaminated their water primarily through contact with their hands

Appendix 3: Privatisation

Starting from an economic perspective, Logan describes privatisation to include all methods through which public organisations, 'designed to produce goods and services for social welfare objectives, change ownership to provide the same goods and services in response to market conditions alone' (Logan 1995).

The Bureau on privatisation in Nigeria sees privatisation as a way of shedding government 'overload' while attaining the much-needed efficiency. It defines privatisation as 'the process of changing the ownership of government (public enterprises) to private ownership through the sale of the shares of such companies to individuals who will manage the companies efficiently and profitably' (Bureau of Public Enterprises 2000). Commander and Killick (1988) however proposed a general classification of privatisation consisting of;

- 1) Divestiture (sale of public-sector assets).
- 2) Franchising / contracting out.
- 3) Self-management.
- 4) Market liberalisation / deregulation and,
- 5). The withdrawal from State provision. Incremental privatisation is said to occur in association with 'withdrawal from State provision' (Bennett, McPake et al. 1997).

The Notion of Privatisation.

Privatisation is based on a public-private distinction derived from the term's 'public' and 'private' and is used to represent the process of transfer from public to private. As a process, privatisation does not fully encompass the way contesting interests and parties use these terms. In order to appreciate the fuzziness of the privatisation concept, it may be necessary to start by examining the terms 'public' and 'private.'

The terms 'public' and 'private' have a longer history than the word privatisation. Whereas the terms public and private have been in use since the late middle English era (i.e. between 1350 to 1469), the date of the first recorded use of the word 'privatisation' was given in the year range of 1930 to 1969 (The New Shorter Oxford English Dictionary 1993). 'Public' and 'private' are normally used to describe a number of

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related oppositions at the core of which is the belief that public is open and private is closed. Such examples are public conferences and public places, while the related oppositions such as diaries and homes are private in terms of restricted access and visibility. The terms 'public' and 'private' therefore 'stand in opposition to each other along this dimension of accessibility' (Starr 1988). This has been one of the central issues of debate on privatisation.

In ordinary usage, it conveys the dimension of whole as against a part. 'Public' in this sense often means 'common' but not necessarily governmental. Public opinion therefore means the interest of the whole people. Public-spirited or minded citizen refers to one concerned about the community as a whole. This also has been at the heart of the issue of privatisation serving part as against the whole society.

In opposition to this is the belief that public or 'common' ownership as against private or individual ownership is the difference between efficiency and inefficiency. This dimension of whole is however interchanged in the official context. The State acts on behalf of the whole society and makes rules that bind the whole society. A 'public act' is therefore one that carries official status and this time public often means official.

Viewed from the economic perspective, 'private' implies that which lies beyond the State's boundaries or public sphere such as market or family. This has however raised some semantic differences as to the location of the market. The sociologist or anthropologists concerned with culture believes the market lies within the public domain i.e. family or society, while to an economist; the market is essentially in the private domain (Starr 1988).

The political dimension of the public-private distinction however presents an interesting scenario. The modern State essentially distinguishes persons from offices. The office is public in terms of its files, rules and finances, as distinct from the private possessions and character of the individuals occupying these public positions. There is therefore a 'public' office and a 'private' life (Starr 1988).

In post-colonial Africa, 'public' and 'private' takes on a different political dimension. Public realm in colonial Africa, unlike the West from which it was imported, developed as 'two publics' rather than one. The first is 'roughly coterminous with the sphere of government' and the second, is the 'primordial public comprising ethnic and regional

associations' and nurtured by private or ethnic values (Ekeh 1982; Osaghae 1998). Thus national policies like privatisation can create a situation where an individual may be working in the 'two publics' at cross-purposes.

The Water Privatisation Debate

The Privatisation of the water industry was one of the most contentious privatisations of the 1980s and 1990's (Richardson, Maloney et al. 1992). The belief was that the of private companies will bring in their efficiency and thereby perform better where public agencies have failed (Hardoy, Mitlin et al. 2001). The improved performances of the national economies a number of countries in the South was attributed to privatisation's efficiency alone (AlObaidan 2002). Water privatisations in Guinea, Senegal and Cote d'Ivoire that were implemented with a lease contract, only demonstrated improvements in raising revenue. It was however not clear if the increased revenue reaches the bodies responsible for the investments in the sector (Bayliss 2001).

Some analysts and commentators have expressed concerns on the application of commercial principles to water resources. Some argue that:

- Water is essential to human survival and that water is a human right (UNICEF 2002c). For this reason, the decision regarding its use and allocation should not be driven primarily by economic reasons.
- Water is often viewed as a public trust or a common-pool good rather than a market commodity. The failure of some governments to provide safe and affordable water to segments of the population does not justify the initiatives to treat it as an economic good (Yaron 1998).
- The IMF and the World Bank should not be making decisions about water management in countries around the world, since democratic and community involvement are required for water management (Yaron 1998; Amnga-Etego 2001).

On the other hand, the proponents of water privatisation argue that:

- 'An insistence that disadvantaged people should pay for improved water services may seem harsh but evidence indicates that the worst possible approach is to regard people as having no resources' (Bennett, McPake et al. 1997; Southern African Development Bank 2000).

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- The 'promises of free services for all have, in practice, usually resulted in some service for a few and little or none for the most' (Gilbert 1999).
- 'The urban poor not only become involved in the production and distribution of the services and facilities but they gain access to urban benefits which (even for a price) they would not otherwise have enjoyed.'
- Many urban residents (except the poorest) are not only willing, but anxious to pay a market rate for what they perceive to be necessary services, delivered efficiently and regularly' (Whittington D et al 1990).

The popular arguments for water privatisation are based on the economic concepts of ability and willingness to pay. Several studies mostly sponsored by the World Bank were conducted using the contingent valuation method to determine the willingness of the poor to pay for services. The studies concluded that reselling and vending activities point to consumers' ability and willingness to pay for water service (Whittington, D; et al. 1989; Whittington D et al 1990; Katko 1991; Whittington and Choe 1992).

In a Moroccan study, the respondents despite having reliable and free stand-post service, expressed the willingness to pay 7 to 10% of total household expenditures for individual water connections and subsequent commodity charges (McPhail 1993). However, Cairncross cautioned that 'the temptation is to over estimate the willingness of consumer to pay' and assume that 'the ability to pay a certain amount implies a willingness to do so' (Cairncross 1992). In the urban areas of Tunis, Tunisia, the most important obstacle in connecting to the piped water system was the utility-required cash down payment (McPhail 1994).

In Faisalabad, Pakistan however, empirical observations show that even after connecting to the pipe water network, some households continue to augment it with alternative sources. The willingness to pay for water, Reddy noted, may be influenced by extra economic factors such as low opportunity costs of women and children and attitudes towards female labour and public goods (Reddy 1999). Hence the willingness to pay for water may hold other implications for women and children, which may have been overlooked in favour of economic analysis.

The Privatisation of water may better serve those households that can afford to pay yet remain un-served due to poorly organised public services. The question that remain

unanswered is how privatisation will provide adequate quality coverage for low-income groups who cannot pay (Hardoy, Mitlin et al. 2001). Water privatisation in Buenos Aires in Argentina, Atlanta Georgia, in the USA, Manila in the Philippines, Cochabamba in Bolivia, Jakarta in Indonesia, Nelspruit in South Africa and the United Kingdom, all experienced price increases. These price increases in a commentator's view, were borne disproportionately by the urban poor (Grusky 2003).

In Buenos Aires, Aguas Argentina, a private water company that was contracted to supply water to the city decided to extend its water infrastructure to the other parts of the city that were not initially covered in its contract (Loftus and McDonald 2001). Water rates that Aguas Argentinas said would be reduced by 27% actually rose by 20% (Grusky 2003). Many poor households unable to keep up their payment fell into arrears and were promptly disconnected from the network (Loftus and McDonald 2001). The infrastructure created by self-help efforts of the inhabitants of these sections of the city was later transferred to Aguas Argentina (Pirez 2002). The World Bank argues that those who can't afford water will receive 'targeted subsidies.' Some commentators are however wondering how these 'targeted subsidies' will be achieved for low-income populations (Public Citizen 2003).

Whilst public services often turn blind eyes to illegal water connections by the low-income groups, no private company will tolerate this since it leads to cuts in its profits. There are therefore concerns that private companies may be reluctant to extend infrastructure and services to areas predominantly occupied by low-income groups especially if they are uncertain of the willingness or capacity of residents to pay for their product (Hardoy, Mitlin et al. 2001).

In Jakarta Indonesia, PAM Jaya the municipal water supplier in 1997 agreed to force businesses and private homes to shut down private wells and buy water from the new private companies. Water services in Jakarta's rich, middle-class and industrial areas thereafter improved. However, most poor communities remain without piped water due to unaffordable connection charges and lack of incentives for the companies to service these areas (Grusky 2003).

With rate rises accompanied by the removal of government subsidies and leniency towards illegal connection in public utilities provision in Buenos Aires, the low-income population found it difficult to access and maintain a connection to these basic services

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(Pirez 2002). In Cochabamba, Bolivia, water rates increased by 100-200 percent, resulting in civil disobedience and angry protests in streets by the poor populace. As a result, the Bolivian government was forced to terminate the water privatisation contract it had with Aguas del Tunari (Grusky 2003). Some analysts therefore argue that the failure of some governments to provide safe and affordable water to segments of the population is not enough reason for the application of commercial principles (Yaron 1998; Amnga-Etego 2001).

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Appendix 4: Summaries of studies on water access and health

Author(s)	Year	Location	Goal	Findings/Comments
Hebert James R.	1985	India	The study was aimed at assessing the nutritional status of children in three communities.	The study findings suggest that water quality was the principal determinant of health for children less than three years while water quantity was most important for 'children more than three years of age. It is however, worth noting that the study only addressed the issues of pre-school children while children above the age of five years were excluded
Cairncross, S. Cliff, J. L.	1987	Mozambique	To compare the water usage in two villages in relation to the distance to source	The results showed that the reduction of the water collection journey was associated with an increase in average household's water consumption. This had a great effect on food preparation and on the incidence of trachoma.
Cairncross, S. Kinnear, J.	1992	Sudan	The study was used to assess the effect of the price charged for water and of household income on domestic water consumption in three communities.	Households within these communities showed no tendency to use less water when paying a higher price for it, or when their income was below average. Meaning no price elasticity or income elasticity was detectable.
Mensah, Kwadwo	1999	Ghana	To access the nature and status of water supply and sanitation	Wealthy households had an individual piped water supply and only 9% of low-income people had exclusive use of their taps. Poor residents without an on site connection purchase water from wealthier inhabitants The study noted that 'older men rarely fetch water, girls over 7 years, boys of between 7-19 years and women are those who queue for water'
Thompson, J; Porras, I; Tumwine, J; Mujwahuzi, M; Katui-Katua, M; Johnstone, N; Wood, L.	2001	East Africa	A follow-up study of the original Drawers of Water communities, by precise replication in order to determine if the situation has changed	The study results, among other findings: 1. A general decrease in the average distance to water sources in the urban areas of East Africa—the un-piped houses walked less than 100m to water sources. 2. There was also an increase in the number of child 3. The average water collection time increased despite the relatively shorter distance to the source
Guarcello, Lorenzo; Lyon, Scott	2003	Yemen	The study was aimed at exploring how water access affects children's work and education.	Many of the children from households without access to water were reported to have lesser school attendance, were more engaged in income generating work and played significant roles in water collection when compared to those from households with water access. The study concluded that availability of safe water supplies affects parent's decisions concerning their children's activities.

Appendix

Appendix 5a: Pilot Study 2—Focus group discussion guide.

This guide was based on the primary objective of this study, which was to elicit authentic accounts of young people's perception of their participation in household's water provision. The central research question is based on these subjective perceptions while the sub-questions are to be raised and expressed in the language of the participants.

Information About the Focus Group

Date of Focus Group	
Location of Focus Group	
Number and Description of Participants	
Moderator Name/Phone Number	
Assistant Moderator/Phone Number	

STAGES IN THE FOCUS GROUP SESSIONS (Duration 1 Hour).

With the researcher acting as the moderator, the following questions shall be presented to the participants one at a time for discussion and group agreement.

1. Tell us your name and one thing you enjoy doing (hobby, activity, etc).
2. What are the important things that you have in your community? What are the things that are lacking?

After 10 minutes;

3. How would you rank them?

Appendixes

Brief Summary/Key Points	Notable Quotes

4. Let us look at water. What are the things you do with water in your house?

Can we list them in their order of importance to us?

Brief Summary/Key Points	Notable Quotes

5. Where do you get the water you use in the house?

6. What role do you play in getting water from these places for the house use?

7. How long does it take to get to these water sources?

Do you enjoy going to these water sources?

Appendix

Brief Summary/Key Points	Notable Quotes

8. How far are the water sources?

Do you get up early to go there? Is it on your way to school?

9. Will you like to tell us any of your experiences when fetching water from any of these sources?

Brief Summary/Key Points	Notable Quotes

10. We have mentioned a lot of water sources. Do you collect water free of charge from all these sources?

If no.

Appendixes

11. Why do you pay for water that you collect from some places and but not from all places?

Brief Summary/Key Points	Notable Quotes

12. What do you do with the water that you buy from these places?

13. How often do you go to buy water from these places?

Is the water enough for everyone in the house?

Brief Summary/Key Points	Notable Quotes

14. Would you like to tell us the people that sell water in the places you have been and some of your experiences there?

Appendixes

Brief Summary/Key Points	Notable Quotes

Let's summarise the key points of our discussion. (The moderator or assistant will give a brief 2-minute summary of the responses to questions).

15. Does this summary sound complete? Do you have any changes or additions?

16. The goal is to describe your experiences and views on household's water provision and health. Have we missed anything?

17. What advice do you have for us?

Brief Summary/Key Points	Notable Quotes

Appendixes

Having concluded the group session, the participants will commence the conceptual mapping session (45 mins) in sub-groups of between 4-6 participants, using local magazines and blank poster sheets provided for this purpose. At the end of the exercise, each sub-group shall nominate a member that will present the finished concept map to all other participants for their comments. The session will then end with the promise to communicate the results of the study to them.

Appendices

Appendix 5b: Pilot Study 2 focus group session (Duration 1 Hour).

One of the children trained by the researcher acting as the facilitator, the following questions shall be presented to the participants one at a time for discussion and group agreement. The transcribed copy of the session is attached herewith.

12. Tell us your name and one thing you enjoy doing (hobby, activity, etc).

13. What are the important things that you have in your community?

Electricity, Boreholes, Good roads, Water, Pipe borne water, Public taps.

What are the things that are lacking?

Bad roads, Water, Petroleum products, Electricity

Brief Summary/Key Points	Notable Quotes
Bad roads results in frequent road accidents and the frequent power failure was linked to the inadequate water supply, which necessitates children going out to search for water.	

14. Let us look at water. What are the things you do with water in your house?

a. Domestic purposes

Drinking—household members and house pets, Cooking, Cleaning the house.

Personal hygiene—Brush teeth, Bath, and wash clothes

b. Industrial use—As coolant in household generators.

Brief Summary/Key Points	Notable Quotes
Because of the frequent power cuts and failures that is experience in most parts of Asaba, indeed most parts of Nigeria, most wealthy residents employ the use of generating plants. One common household version uses two big drums of water (<i>about 200 litres of water more than one week's water requirement for a poor household</i>) as its cooling mechanism.	

Appendixes

15. Where do you get the water you use in the house?

Sources: Public taps (though intermittent), Water Tankers, Boreholes, Fetch from neighbours with private taps.

16. What role do you play in getting water from these places for the house use?

Children help in filling water storage containers in households without in-house connections and also in households with in-house connections but experiencing intermittence in water supply. This is usually accomplished by carrying water in small quantities repeatedly with a bucket until the containers are filled.

17. How long does it take to get to these water sources?

The sources are usually near the children's houses and it usually takes only a few minutes (say five minutes or less) to get to these water sources.

Do you enjoy going to these water sources?

The answers were mixed. Some say they do, others say they don't.

18. How far are the water sources?

Brief Summary/Key Points	Notable Quotes
In some cases, water is supplied to the household by private water tankers at a price. Children are only involved in fetching water from the tanks in their respective compounds into the houses. In other cases, when water is either fetched free of charge or at a price of 5 Naira per bucket from a neighbour, the distance is usually within hundred meters from the children's homes.	<i>"A bucket of water costs 5 Naira"</i>

Appendixes

19. Will you like to tell us any of your experiences when fetching water from any of these sources?

Brief Summary/Key Points	Notable Quotes
One issue of serious concern to the children is the state of some of these water sources that children go to fetch water. According to one participant, these places are usually wet and slippery resulting in frequent falls and physical injuries.	

20. We have mentioned a lot of water sources. Do you collect water free of charge from all these sources? No.

21. Why do you pay for water that you collect from some places and but not from all places?

Brief Summary/Key Points	Notable Quotes
While most of the children don't enjoy paying for water, they however pay when asked to do so by those in-charge of the water points. However, the participants believe that water is a natural resource and so it's a free gift of nature.	<i>"No I don't, but they sometimes ask for money so I have to do that."</i> <i>"Because you know that water is free gift of nature"</i>

11. Is the water enough for everyone in the house?

Yes.

Appendixes

12. Our goal is to describe your experiences in household's water provision and health. Does this water that you buy or get from your compound, does it affect your health?

Brief Summary/Key Points	Notable Quotes
<p>The importance of water to life was highlighted when enumerating the uses of water.</p> <p>The issue of contaminated water from public taps and it's relationship to ill health was subsequently raised by one of the participants with murmurs of agreement from the rest of the group. The role of the public in the contamination of water due to damages to the pubic network was also mentioned.</p> <p>The lack of regulation and standardisation in the provision privately owned water boreholes was also raised as a major cause of ill health due to contaminated water.</p>	<p><i>"....even without water we cannot live." (i.e. stay alive)</i></p> <p><i>"..... when you tell people to dig borehole for you they don't do it right. They do it in a wrong way that it is not neat. Instead of you to be getting water you get another thing...."</i></p>

15. Now I've talked about water provision and health. Do you have any advice for the people out there in this country as, as regards health?

Brief Summary/Key Points	Notable Quotes
<p>The rich should help to provide water for the poor.</p> <p>Government should try and provide pipe borne water for the populace and those that vandalise pubic networks should desist from doing so</p> <p>Maintenance and security of the public networks should be the joint responsibility of both the government and the community and not just putting the blame on government alone.</p>	

The session ended with light refreshment for the participants and the promise to communicate the results of the study to them.

Appendix 6: Children & domestic water provision

Focus Group	Household Tasks	Water Usage by other Household Members	Household's Water Sources	Physical Accessibility	Frequency of Water Supply	Attitude towards water fetching	Effects of Power Supply (emergent theme)
	1.1	1.2	1.3	1.4	1.5	1.6	1.7
Ogeah International School's Focus Group	1. Fetch water to fill drums. 2. Fetch water from storage tanks into the house with buckets. 3. Fetch water only if taps are not running due to power failure.		1. Storage tank within the compound supplied by water tankers. 2. Boreholes with in-house connections 3. Fetch water from neighbours that own boreholes. 4. In-house connected public water supply with or without added storage tanks	1. Within compound storage tanks reduces distance to fetch water into the house. 2. Short distances usually the next neighbour. 3. Takes less than five minutes in most cases.	Constant except when there is power failure. Private boreholes not affected but public taps are usually affected.	Divided views on the issue of enjoying fetching water. Boys appear to enjoy it while the girls don't.	Water supply is disrupted when there is power failure.
Otogwu Focus Group.	1. Wash clothes 2. Sweep /scrub 3. Wash plates 4. Fetch water into the house 5. Purify water?	1. Mother—wash clothes, cook, drinking and bathing. 2. Father—Bathing and drinking 3. Children—wash clothes, wash plates, drinking and bathing.	1. Yard tap 2. Boreholes without in-house connections so water must be fetched and carried to the homes. 3. River 4. Packaged drinking water purchased from local distributors.	1. Yard taps mostly shared by several families. 2. Distance to the nearest borehole is about 150m uphill. 3. Distance to the river, about 100m downhill. 4. Frequent damage to yard taps due to fights for right to fetch water first as queues are not usually respected	Supply is usually intermittent Taps run for about 4hrs a day and does not run every day. When yard taps are not running, children go to boreholes to fetch water. Although water is always available at the boreholes for a price, those without money go to the river to fetch water.	Divided views on the issue of enjoying fetching water. Boys appear to enjoy it while girls don't.	When there is power cut, the public taps slows down and then gradually stops. Children then have to go out searching for water.

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Appendix 7: Involvement in the productive uses of water

Focus Group	Economic Accessibility	Attitude to paying for Water	Sale and Distribution of Water	Contribution to household's livelihood Security
Ogeah International School's Focus Group	<ol style="list-style-type: none"> 1. Pay N5 to fetch water but most cases don't usually pay for water 2. Collect water free mostly from neighbours or friends 3. Believe that by appealing to neighbours one can fetch water for free. 	<ol style="list-style-type: none"> 1. Usually don't enjoy paying for water because they believe parents have already paid for the services of the public authorities. 2. Believe water is a free gift of nature. 3. Believe that private borehole owners may waive any charge they intend to collect for fetching water by appealing to their consciences. 	<ol style="list-style-type: none"> 1. Do not like the situation when children hawk packaged water. 2. The sale and distribution of water is not in their view, a normal domestic task for children 3. Even adults should not ideally hawk packaged water, but if they must, they should do so without the help of children 	
Otogwu Focus Group.	<ol style="list-style-type: none"> 1. Money not readily available. 2. Usually waits for the public taps to start running before fetching household's water. 3. In emergencies, when taps are not running, may borrow money to buy clean water. 	<ol style="list-style-type: none"> 1. Most children don't like paying for water simply for financial reasons. 2. Family income is usually the hindrance. 	<ol style="list-style-type: none"> 1. Usually at the expense of children's schooling. 2. Most children consider schooling as being more important than selling water. 	<ol style="list-style-type: none"> 1. Contributes to household's livelihood security 2. To support parents who may be either physically or financially handicapped 3. Orphans need money to look after themselves. 4. Some others who are not orphans may want to make some money on the side to buy some things for themselves.

Appendix 8: Health Implications of children's involvement

Focus Group	In Relation to Household chores	In Relation to Water Sources	In Relation to Frequency of Supply	In Relation to Economic Accessibility	In Relation to Sale and Distribution of Water	In relation to Livelihood Security
Ogeah International School's Focus Group		1. Falls due to slippery grounds at water sources. 2. Water contamination 3. Lack of regulation and supervision of boreholes construction, resulting sometimes in poor quality water supply			1. Regarded as child abuse 2. Motor accidents	
Otogwu Focus Group.	1. Headaches 2. Neck sprains	1. Stomach discomforts 2. Stomach cramps accompanied by diarrhoea. 3. Itching and rashes from either bathing with river water or going to the river to swim.	1. Fevers from prolonged exposures to the elements when searching for alternative sources of water. 2. Sun burns 3 Bruised Scalps. 4. Bodily injuries from street fights or at the water points	1. May resort to drinking contaminated river water due to financial reasons when public taps are not running. 2. Diarrhoea 3. Stomach upsets.	Frequent exposures to elements resulting in 1. Colds symptoms and illness 2. Sun burns 3. Motor accidents	1. Income generated helps orphans and street children to maintain nutritional status and prevent starvation and death. 2. Helps to buy little food supplements and prevent malnutrition due to unbalanced diet.

Appendix 9: Main Study Interview Guide

1. What is your name?
2. How old are you?
3. Do you attend school?
Where is your school?
What class are you?
4. What's your best game?
5. What's your best food?
6. Where do you live?
7. Do you own the house?
Your father built the house or you rented it?
8. How many rooms do you occupy in the house?
9. Who do you live with?
10. How many of you are in your household?
11. Are they your father's children?
Your father and mother gave birth to them?
12. Are you the first or the last child?
13. What is your parent's occupation/s?
14. Can you tell me some of the things that the government has provided for you?
15. Do you work in the house?
What do you do in the house?
16. Do you fetch water? Where?
What do you use to fetch water?
What is the size of the container?
17. How far from your house?
18. How many times?
19. When do you fetch water normally?
In the morning or in the night?
20. Why do you fetch water?
21. Do you use from the water you fetch?
Do you use as much as you think you need?

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22. How do you normally feel after you have completed the water fetching task?
23. At the borehole, if you meet an adult there, will you allow that adult to fetch water first even though you were at the source first or will you insist on fetching water first? Do they on the other hand plead with you to fetch first?
24. Do these adults pay for water?
25. Do you know why they pay for water?
26. Do your father's other children join you in water collection?
27. What do they use to fetch water?
28. What size of container do you recommend that children should use to fetch water?
29. Is it proper that children are the ones fetching water for other members of the household?
Why do you think so?
30. If you refuse to fetch water, what will happen?
They will not scold you?
31. Why is it important to make water available to the house?
32. Do you find water fetching an easy task? Why?
33. Is it your duty in the house to fetch water?
34. Do you enjoy it?
35. How do you see a child that fetches water?
36. Have you ever sold water?
37. Have you ever bought pure water? Where?
Why did you have to buy 'pure water?'
Who provided the money?
Was it chilled or just the normal room temp?
38. Have you ever heard anything about Child Rights or the United Nations?
39. Have you ever heard about children's right to water?
40. Is there any other thing you will wish to tell me that I have not mentioned so far?

Appendix 10: Research Information Leaflet for Children

Research and your Rights

- It is for you to decide whether you want to talk to me.
- You do not have to say yes.
- If you say 'yes', you do not have to go through the whole interview.
- We could stop when you want to, or have a break.
- If you do not want to answer some of the questions, you can just say 'pass'.
- Before you decide whether to help me, you might like to talk about the project with your parents or with a friend.
- I keep notes of the interviews in a safe, lockable place.
- When I talk about the research and write reports, I always change people's names, to keep their views anonymous.
- I would not talk to anyone you know about what you have said, unless you talk about the risk of someone being harmed. If so, I would talk with you first about what could be done to help.

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Appendix 11: Consent Form A (Participant)

STUDY TITLE: URBAN HOUSEHOLD'S WATER PROVISION: CHILDREN'S ISSUES OF CONCERN.

INVESTIGATOR: Charles Ofili.
Department of Public Health & Policy,
Public & Environmental Health Research Unit,
London School of Hygiene and Tropical Medicine,
University of London,
Keppel Street, London,
WC1E 7HT

1. "I have read the information sheet concerning this study [or have understood the verbal explanation] and I understand what will be required of me and what will happen to me if I take part in it"
2. "My questions concerning this study have been answered by"
3. "I understand that at any time I may withdraw from this study without giving a reason and without affecting my normal care and management"
4. "I agree to take part in this study"

Signed Date

Appendix 12: Study Information Sheet for Parents/Guardians

STUDY TITLE: URBAN HOUSEHOLD'S WATER PROVISION: CHILDREN'S ISSUES OF CONCERN.

INVESTIGATOR: Charles Ofili.

OBJECTIVE OF THE STUDY

The overall objective of this study is to explore children's perspectives on their experiences in household's water provision and related health implications. In the past, their views have been mostly overlooked by adults especially in decision making concerning household water provision. This study is taking a different stand by asking for the views of children as stated in the Child Rights Convention. For this reason, the free participation of children is very important. The study will take the form of a) group discussions involving at most eight (8) children per group. b) personal interviews for individuals to air their views. c) It may also be necessary for me to talk to some children at the various water sources in the town.

TIME REQUIREMENTS

The study may make some demands on the time of the participants in order to fully participate in group discussions and personal interviews. The anticipated required time for each of the sessions is about one hour (1 hr). To make this suitable, participants are allowed to decide when it will be convenient for them. The study is entirely voluntary and withdrawal is possible at any time without given a reason.

CONFIDENTIALITY:

The information obtained during the study is confidential and I shall ensure that the names of the participants are not included in the manuscripts or data transcripts.

APPROVAL

Clearance to conduct this study has been obtained from the Delta State Ministry of Education and the Delta State Ministry of Youths, Sports and Culture. Application for the clearance of the Ethics Committee of the London School of Hygiene and Tropical Medicine has been submitted for approval.

Appendix 13: Consent Form B (Parent/Guardian)

STUDY TITLE: URBAN HOUSEHOLD'S WATER PROVISION: CHILDREN'S ISSUES OF CONCERN.

INVESTIGATOR: Charles Ofili.
Department of Public Health & Policy,
Public & Environmental Health Research Unit,
London School of Hygiene and Tropical Medicine,
University of London,
Keppel Street, London,
WC1E 7HT

1. "I have read the information sheet concerning this study [or have understood the verbal explanation] and I understand what will be required of me and what will happen to child/ward if s/he takes part in it"
2. "My questions concerning this study have been answered by"
3. "I understand that at any time I may withdraw my child/ward from this study without giving a reason"
4. "I agree that my child/ward should take part in this study"

Signed Date

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Appendix 14: Ethics committee approval

**LONDON SCHOOL OF HYGIENE
& TROPICAL MEDICINE**

ETHICS COMMITTEE

APPROVAL FORM

Application number: 1096



Name of Principal Investigator Charles Ofill

Department Public Health & Policy

Head of Department Professor Gill Walt

Title: Urban households' water provision: children's issues of concern.

Approval of this study is granted by the Committee.

Chair *T. W Meade*
Professor Tom Meade

Date *7 July 2004*

Appendix 15: Nvivo Document Text Report

NVivo revision 1.3.146 Licensee: LSHTM

Project: Urban households water User: Administrator Date: 22/09/2005 - 17:49:51

Document: Focus Group 3
Created: 22/09/2005 - 09:25:26
Modified: 22/09/2005 - 17:49:35
Description: Group discussion took place in Niger Secondary School Asaba.

GROUP SESSION : With the main researcher acting as the moderator

Document Text:

- 1: Moderator: Do I have your permission to record this discussion?
- 2: Discussants: (Chorus) Yes
- 3: Moderator: Good, we can now start. I will leave this recorder here and the other there. So who will start? What's your name?
- 4: I: My name is I Or.
- 5: L: My name is Oo L
- 6: C: My name is C Ae
- 7: E: My name is E Oi
- 8: J: My name is J Oa
- 9: S: My name is S Ee
- 10: Nd: My name is Aa Nd
- 11: Ed: My name is No Ed
- 12: Moderator: Am Charles, I will moderate this show. So let's start. What we are going to do now (.) I have some questions here that I put down to guide me and remind me on what to say. But the questions are not meant to be question and answer

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kind of thing, you may decide to answer what you like and frankly I prefer that. You may also decide to counter what others say, I don't mind that too. I don't mind interruptions as well. We all know about water. Can we start with this, what are the things we do with water in the house?

- 13: L: Washing
- 14: Moderator: Uhun
- 15: L: drinking
- 16: Moderator: Yeah
- 17: L: and many other things.
- 18: Moderator: Yes, many other things. Any other one?
- 19: I: We use water for watering our flowers,
- 20: Moderator: Uhun
- 21: I: like...
- 22: Moderator: Yes
- 23: C: ...in molding our blocks
- 24: Moderator: Uh?
- 25: C: We use water to mold our blocks
- 26: Moderator: Yes now, we use water in so many things. But the problem now is this, where do we get this water we use for these things? We must be getting them from somewhere?
- 27: I: Yes
- 28: Moderator: They don't fall from the sky all the time. What are the sources of water?
- 29: S: Rivers, boreholes, taps..

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- 30: I: Like in the urban sites now, it's hard to see river so what they have are the taps and boreholes that are built specially while you go to the rural areas where they are not privileged to have the boreholes, they go to streams and the most boreholes they have are not well taken care of so they prefer taking water from the stream because they believe it is natural that is not, they don't add chemicals in making them to purify them you understand so in the rural area they prefer it where they easily get, they prefer the stream water where they easily get it, but the urban centers where we rarely hard to get stream or river water so we prefer the tap and the borehole. And some people really prefer the tap because it's highly treated from the board where it's being taken care of before it's brought down than the borehole which you purify by alum or some other chemicals which they use to make it clean.
- 31: Moderator: I saw some boreholes while I was on my way here and they just put their pipes into the ground and pump the water straight into their tanks and people drink the water from these tanks. Do they purify such?
- 32: S: Yes
- 33: I: Yes they purify before taken, before putting them down. They add some chemicals. But most people, even with the borehole they don't drink it like that, they cook, some boil their water, after boiling then purify before drinking it.
- 34: Moderator: OK.
- 35: I: But while for the tap some people don't feel like doing it because they feel it is already treated.
- 36: Moderator: Does it mean all of us have boreholes in our houses?

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- 37: (All chorus No OO)
- 38: Do you go out to fetch water?
- 39: S: Yes
- 40: J: Yes
- 41: I: We do have but..[]
- 42: J: As he said, the one in tap that they are cleaner because they come from the board (i.e. the Delta Water Board). The one close to my compound (yard tap) is always red because the pipe leading from the board, some are rusted so some are very bad you have to allow it to settle and even if you taste it, it tastes rust you know that even after boiling them you still have the rust taste in it. Then you find that it is useless most of the time. So I prefer going outside to fetch the one from the borehole and than the one that comes from the board.
- 43: Moderator: The ones you go to fetch water, I mean these boreholes, how far are they from your houses? Are they far from your homes?
- 44: E: No
- 45: C: No. They are near, it's like a competition.
- 46: E: And most new houses in Asaba as the state capital, I don't know whether it's the law, as you have, as a landlord immediately you are raising a block for a house you will be ready to put a tank and a borehole which the whole tenants and you yourself will use. That is there will be no lack of water or scarcity of water. It's so much it's every where
- 47: Moderator: So you have a lot of boreholes
- 48: C: A lot of boreholes
- 49: Moderator: So people don't go far to fetch water then?

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- 50: C: No, not in the city
- 51: Moderator: But which kind of people []
- 52: J: Some landlords sell their water
- 53: I: Yes some landlords sell their water.
- 54: J: They sell their water to the tenants.
- 55: Moderator: To the tenants?
- 56: E: Yes
- 57: J: Yes
- 58: I: Yes, it's really, its business
- 59: Moderator: Like how do they sell them?
- 60: I: Like a []
- 61: Moderator: A bucket?
- 62: I: Like, like
- 63: J: A gallon is like 2Naira 50kobo
- 64: E: That is 5litres or 30litres, 20litres two for 5Naira that is how they sell it
- 65: Moderator: 20litres?
- 66: J: Two 5Naira
- 67: E: Two 5Naira
- 68: Moderator: 50litres will be like?
- 69: J: 5Naira
- 70: E: 5Naira for one
- 71: Moderator: And some landlords sell at these rates to their tenants?
- 72: J: Yes
- 73: E: Yes

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- 74: Moderator: That's serious O.
- 75: Ed: There are some who don't use to sell. Like where am living now, we are not buying water there.
- 76: Moderator: So he gives free of charge?
- 77: Ed: Yes
- 78: I: In my house, my dad doesn't collect money from his tenants.
- 79: Moderator: So the water sources fortunately are not far away from anybody.
- 80: E: Yeah
- 81: C: Yes
- 82: Moderator: So which kinds of people fetch water? That carries water? Because I've seen some people carrying water earlier. Who are the kinds of people? Are they adults or children?
- 83: I: Every kind of people
- 84: Nd: Children and adults
- 85: L: They are mostly children
- 86: E: Mostly children
- 87: I: Yes mostly children in the sense that []
- 88: S: Mostly children
- 89: I: Yes the children their eligible of doing the work. It's mostly children.
- 90: Moderator: Is it child's work?
- 91: I: Yeah
- 92: E: Child's work
- 93: Nd: It's child's work

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- 94: Moderator: But, what, Ok I've now gathered from you that there are different kinds of containers that are used for fetching water.
- 95: E: Yes
- 96: Moderator: Like?
- 97: J: 10litre
- 98: I: 20litre
- 99: J: 25
- 100: S: 25
- 101: I: 30
- 102: L: But you cannot 50litre on top of your head.
- 103: Moderator: Ehen?
- 104: L: You carry wheelbarrow
- 105: Moderator: You cannot carry 50litres on the head
- 106: E: Yes
- 107: J: Or the 20litre you take wheelbarrow to take two at once
- 108: Moderator: But if children fetch water, like I took a photograph somewhere, I was wondering what you people will say about it. Don't mind the print product the printer I have here is not doing too well. If you look at the photograph you will see some children, just pass it round, fetching water. Like you said mostly children and I think I agree with you because I have seen them myself, what, do you think eh, it is proper for children to keep on fetching water for adults?
- 109: I: Emm,
- 110: Moderator: No. In your own opinion O.
- 111: S: Ok.

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- 112: Moderator: Nobody knows what is right, we are just discussing it?
- 113: S: Right
- 114: Moderator: It is right?
- 115: I: It is right, because I don't see a situation whereby a father or mother in the house have a child who is strong enough and eligible enough to fetch water to leave the house to go out and fetch water for the child. It's a normal household chore for every child
- 116: Moderator: to fetch water?
- 117: I: fetch water
- 118: J: But []
- 119: Moderator: So, yes go on
- 120: J: But in some cases they give the water to very little children that and they give them very heavy things to carry which these things that are too heavy for them they make them walk slowly and they (i.e. adults) don't care they tell them go and fetch it, I don't care how you're going to carry it or you going to tell somebody to place it on your head or wheelbarrow or anything, beg or do anything []
- 121: I: But at most times parents that do give the children, small children heavier loads, heavier containers to fetch water are not mostly their parents []
- 122: J: Yeah they are []
- 123: I: If somebody that have a child normal that's maltree, that's what
- 124: Moderator: That's child abuse
- 125: S: If you give a child overload it's not proper

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- 126: Moderator: Now if we want to say within ourselves, you know there are different stages of childhood, you have five year olds, 6yrs, 7 to 10. Once you are below 18 according to the law in Nigerian you are a child, so anything from 5-17. What sizes of load do we think, in the case of fetching water, should each age group carry? Should a five year old carry 20litres or 25litres of water?
- 127: J: No O
- 128: E: No
- 129: Nd: Normally []
- 130: L: Maybe a child of 8yrs can carry 10litres
- 131: Moderator: A child of 6yrs can carry it?
- 132: L: 8yrs
- 133: Moderator: 8yrs can carry it?
- 134: I: Can carry 10litres. Then 5yrs can carry maybe like []
- 135: E: 1litre
- 136: I: 2litres
- 137: L: 4litres
- 138: Ed: I don't think 5yrs old child should really be fetching water
- 139: I: At all
- 140: E: But they like going []
- 141: Ed: Like if []
- 142: I: They like water, they like playing with water you see them carrying jerry cans even though
they are warned don't go but you see them they enjoy water, is like light
- 143: Moderator: So we can say they can play with water if they wish but not carry it.

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- 144: I: Yes
- 145: L: Yes
- 146: Ed: Yes
- 147: Moderator: So from around that 8yrs to say 10yrs, what size should we, do you think it is appropriate for that kind of child?
- 148: J: 10litre
- 149: E: 10litres
- 150: I: Yes
- 151: Nd: 10litres
- 152: Moderator: Then from 10 to 14, 15yrs?
- 153: L: 10
- 154: Ed: 20
- 155: J: 20
- 156: E: 20, 25
- 157: C: Maybe 20 or 10
- 158: Moderator: That is assuming the person will carry it on the head O?
- 159: L: Yes
- 160: Ed: Yes
- 161: I: 20 or 10
- 162: Moderator: 20 or 10
- 163: E: Yes
- 164: Nd: 20 or 10
- 165: Moderator: That means anything beyond 25 is not ideal for any child to []
- 166: Ed: carry, yes.

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- 167: E: It's punishment
- 168: S: It's bondage
- 169: Moderator: I've tried carrying one, because I saw a child and I even took his picture actually and I tried to lift a 25litre jerry can, I looked round to see if anybody saw me because actually it was difficult for me. Maybe because am not use to it. But this child picked it up and placed it in his wheelbarrow and it was very shameful for me and I concluded that not matter what others think this is heavy load. Now do you think fetching water is a kind of 'helping hand' job for the house?
- 170: Ed: No
- 171: Moderator: Like they call it something you call, you know helping hand jobs, jobs you do to help parents at home, like light job something you can just do casually. Do you think fetching water is a 'helping hand' job?
- 172: (chorus of Yes, Yes, Yes individual voices not identifiable)
- 173: J: I don't think so because []
- 174: Moderator: Uhum, she doesn't think so. Yes
- 175: J: Water is kind of, it should be in every home, in your bathroom, in your kitchen there should be sink, there should be water flowing in the sink. So fetching water outside I don't think it is proper. We think every citizen, everybody should have water flowing, running in his or her house and clean water.
- 176: Moderator: Let me take you up on that. There was one something I read, you know I read a lot like I said, United Nations says 'it is every child's right to have water'

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that you must be provided with water. They say so O, they just say it internationally, have you heard that statement before?

177: J: No O

178: (Others chorus No o)

179: Moderator: O ho. Which means they need to do their jobs more, in bringing this information to us. They said every child should have water, but at the same time they say fetching water is 'light work', do you consider fetching water, or if a child lifts 25litres of water as 'light work'?

180: Ed: It's not O ha.

181: (general murmur of protest from other participants)

182: Moderator: And if you have to do it everyday []

183: I: Like we every morning []

184: Moderator: for 365 days?

185: I: Every morning []

186: J: Like me everyday

187: I: we wake up in the morning we might go like three or six times before I do any other thing

188: Moderator: Oh ho. Do you call that 'light work'?

189: I: No No No.

190: Moderator: So it's not []

191: C: It's not 'light work'.

192: Moderator: We may call it 'child's work' but it's not 'light work'?

193: C: No not light work

194: I: Yes. But it's the normal thing here

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- 195: Moderator: They call us 'South' they don't want to call us developing countries; they say in the 'South' it is normal child's work. But if it is 'child's work' does it make it 'light work'?
- 196: (participants chorus No No)
- 197: Moderator: So it is not 'light work'?
- 198: (participants chorus Yes)
- 199: Moderator: And it's not 'helping hand' duty?
- 200: S: No it is
- 201: E: It's helping hand job
- 202: J: Helping hand
- 203: I: It's helping, it's helping
- 204: Moderator: It's helping hand work but not 'light work'. Ehen. So if you look at this photograph, just pass it round, you will see two children there at night. I took this picture at night from my car as I was driving past, pushing wheelbarrow at night and carrying, that trying to fetch water. It will go round, so in that light you cannot think it is light work when you have to do it so late in the night. Will you call a hobby?
- 205: (participants chorus No O)
- 206: So do you enjoy fetching water?
- 207: (participants chorus No)
- 208: I: As for me, I don't enjoy it?
- 209: Moderator: When you go out to fetch water, do you have any peculiar experience you might like to share, that you have even noticed, something you've seen []
- 210: S: Yes

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- 211: Moderator: ..while fetching water?
- 212: S: Yes. In my water I see something like oil circulating around it after fetching it.
- 213: Moderator: After fetching it, you notice oil film on the surface of the water?
- 214: S: Yes
- 215: J: Even in some boreholes, you find that the owners don't wash them. Immediately they finish pumping water and you go and fetch water you will see some green particles []
- 216: I: like spirogyra
- 217: J: ...from inside the water
- 218: I: At times from the pipe, they don't
- 219: Moderator: But let's look at this, I took this []
- 220: E: I think too it's a matter of choice because you find out that there are many boreholes if you fetch where it's more clear so you can determine to go over to the place that is clean
- 221: J: But most of the boreholes they have, like the ones around my house it's only one that you can say let me go here and fetch water and you are sure of the water you are fetching, others about five of them they are dirty they have
- 222: (tape ends and is turned over)
- 223: smell just like dead rat died inside the water
- 224: Moderator: So some taste like dead rat []
- 225: (general laughter)
- 226: J: died inside the water. The taste is very bad.
- 227: Moderator: OK. I just took the photograph recently; in my village they call it 'udu'. Have you ever seen this type of water container?

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- 228: (The participants chorus yes)
- 229: Those days they use them a lot and those days they use to sterilize them. They put 'ugba' or something, make smoke cover them up. And then they fill it with water. When you drink the water from them they have this peculiar taste..[]
- 230: J: Yes s s
- 231: Moderator: ...and it kills the, all those gametes and mosquito larvae, tadpoles and those things that invade the water. Do they do that with all these plastic tanks we use today? Those plastic tanks we now put up?
- 232: (participants chorus No)
- 233: I: Normally []
- 234: Moderator: But there is a term I heard while interviewing some of your friends. What does it mean, I don't know what it means, somebody called the thing 'buta'. What is 'buta'? I don't know it O.
- 235: I: It's not 'buta', I don't know the name is not buta.
- 236: Moderator: Ehen. What is that thing then? I've been trying to imagine what it is.
- 237: I: The person probably just said []
- 238: S: It's a big black drum
- 239: Moderator: Oh. a big drum?
- 240: I: Is it the plastic one?
- 241: Moderator: I don't know O, it must have been plastic
- 242: Nd: That buta is black they use to draw elephant on it
- 243: Moderator: Ehen. Is that it?
- 244: E: They call it buta and store water in it

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- 245: Nd: It's big and black they use to call it buta
- 246: Moderator: OK. With cover
- 247: (participants chorus yes)
- 248: Moderator: That black plastic drum
- 249: (participants again chorus yes)
- 250: That's buta
- 251: J: That's buta
- 252: Moderator: Okay. Do they, I mean can somebody sterilize that one?
- 253: I: No o
- 254: Moderator: Because I know those things cannot really take heat, because these ancient ones they can take heat and are made of clay. These ones of plastics unless you wash them with soap and water it becomes difficult to keep them sterile?
- 255: L: Yesss
- 256: C: Yes
- 257: J: Yes
- 258: Moderator: And most of these tanks, I wonder whether they wash them regularly.
- 259: I: It use to take time and before you wash them you have to pay some people although some people will say where will I get the money to pay for all these people that will wash them for them
- 260: J: And the money they get from the water they think it is not enough to use it to pay for people to wash the tank []
- 261: E: While some people do wash their tank
- 262: Moderator: OK. Let me see (.) this [] (looking at a photograph)
- 263: J: Thank you very much

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- 264: Moderator: Let me see this. There is this, eh. Wait, wait, wait, I think this is better (referring to another photograph), have you come across these people?
- 265: Nd: They are Mai-ruwa's
- 266: Moderator: Oh, Mai-ruwa's. Have you seen these Mai-ruwas?
- 267: E: (laughs) So much
- 268: Moderator: Have you come across them at all?
- 269: L: Yes
- 270: Moderator: He said they are Mai-ruwas, they fetch water to sell
- 271: L: Yes
- 272: Moderator: And there is one place International Labour Organisation (ILO) they call them. They said if a child, that it is child abuse and child labour if a child does any job that you get money from for somebody outside the person's family. What if the person, and I know some people sell this water like Mai-ruwas, and children fetch water and some sell pure water []
- 273: L: Yes
- 274: Moderator: ..in their own homes
- 275: L: Yes
- 276: Moderator: and they are not doing it for somebody, what do you think that is? Is that still child abuse? They say it's not, but I don't know what you people think?
- 277: E: It's child abuse
- 278: C: Child abuse
- 279: Moderator: If you do the same work that somebody does for maybe you are living with somebody else and you do that work and they are making money from it, and

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you do it in your own home, the same amount of work and they say it is not child abuse, what do you think?

280: J: I think some people sell water to help themselves to pay their school fees. A child who comes from a poor home, from a poor background for instance, the child will always go pushing wheelbarrow fetching water for others to help the parent pay his or her school fees. If you go and do it at home at the same time and they won't really tell you to rest that the one you have done for the day is enough, they will tell you to continue that are your mates not doing it?, we did it those days, we trekked hundred miles to get to where there is a stream to fetch water. And I think it is child abuse, because when am, when am fetching water and I say am tired, my uncle will just tell me, come you see in those days when I was in the secondary school, we trekked miles in fetching water, this one that is just opposite you, you're saying you are tired, what have you fetched, have you filled the drum, or what have you done? You have been sleeping all day and you have the mouth to say this. And I think it is wrong because sometimes am forced doing it, me and my younger brother will say O O, what kind of thing is this, what's this trash and I think it is child abuse because they don't tell you to do it at your own convenient time, they force you to do it and doing it in a very hard way.

281: Moderator: OK. Now let's look at it again, what kind of things do you feel when you fetch water? Do you feel anything? Like at the end of the day after fetching water, do you feel any body symptoms []

282: C: Yes

283: Moderator: ..or anything like that?

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- 284: C: Yes
- 285: Ed: Yes, like []
- 286: E: No
- 287: I: Yes
- 288: E: No
- 289: Moderator: To you it's a part of []
- 290: Ed: Yes, like me after fetching water I found out that my neck is bending and I
have to hold in like that for some time to relieve it
- 291: Moderator: You feel neck pains []
- 292: I: [] shoulder []
- 293: Moderator: Oh, after pushing truck you feel shoulder pains
- 294: I: Yes shoulder pain
- 295: C: And at the back
- 296: E: But in my own you find out that it is individual capacity.
- 297: Moderator: Yes. How do you feel?
- 298: E: Me at the end of the day I don't feel anything
- 299: Moderator: Maybe you are use to it. I can see you are a very strong boy
- 300: C: My palms will be red and (.)
- 301: Moderator: Your palms will be red?
- 302: C: Yes. It's painful carrying []
- 303: Ed: Like those that carry []
- 304: I: like me carrying wheelbarrows []
- 305: Ed: Ehen

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- 306: I: like me carrying wheelbarrow, it will only affect my back, before then my back will be down pushing the wheelbarrow and getting to where am going my back will still be down and I will not like to straighten up because if I straighten up my back will make a sound so I will like to keep my self that way []
- 307: Moderator: Bent up and maintain the posture?
- 308: I: Yes to maintain myself
- 309: Moderator: So there are some physical symptoms that goes with it?
- 310: S: Yes
- 311: I: But I still believe that []
- 312: Ed: Even shoulders
- 313: Moderator: Even shoulders?
- 314: J: Muscle pull. Even your legs walking, going and coming, going and coming [].
- 315: E: And another one is the []
- 316: J: you find that your leg muscles are aching
- 317: E: the extent you fetch the water. Assuming you fetch once. Just fetch it and come back I don't I don't think []
- 318: J: You only just talking, here is somebody that, if you go out say five times hen, by then you will []
- 319: E: But []
- 320: J: our drum is about 350litres, you find yourself going as many times as possible. Like to fill my drums you can go up to 12 trips with []
- 321: E: OK.

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- 322: J: me and my brother going because I give my brother the 10litres to carry me I will be taking two buckets, carrying, and you find yourself going and going and going and you find yourself at the end of the day you're so tired your whole body is painning you and when you find yourself, when you want to sleep next they will come and tap you, come and do this one again and I think it is not ideal
- 323: L: You feel tired
- 324: Moderator: You feel tired?
- 325: L: Yes now
- 326: Moderator: Normally now
- 327: J: I think it's not ideal
- 328: Moderator: So I take it you don't enjoy fetching water.
- 329: J: Yes
- 330: Moderator: So in that light, when do you think a child should start fetching water? Should a five year old start fetching water?
- 331: (participants chorus Noooo)
- 332: L: It's not ideal
- 333: Moderator: So what age will you recommend?
- 334: Nd: 10yrs
- 335: L: After the age of 10
- 336: Moderator: At least beyond 10?
- 337: Ed: 9
- 338: E: Beyond 10
- 339: I: Just beyond 10 please

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- 340: S: 10, 10
- 341: I: Strictly beyond 10
- 342: S: Say is 9 for you but 10 for us
- 343: Moderator: But I notice at a point, I went to one borehole, not one sha, I went to one in Cable and one in Otu-Ogwu and one in town and I notice that at a certain age I don't, from around 18 up I don't see them so much as I see children at the boreholes, which suggests that they stopped fetching sometime []
- 344: S: Yes they stopped fetching []
- 345: Moderator: what age do you think it's []
- 346: ehen, what age did they stop []
- 347: I: They stopped because they think they are like too big []
- 348: Ed: When they have brothers and sisters
- 349: L: Why would, why would an 18 year old or a seventeen year girl []
- 350: E: That has younger ones at home
- 351: L: ..start fetching water that people will be looking at him or her []
- 352: I: You know, you must see this, is not that []
- 353: L: ..outside and he has the younger brother that can do it for him or her so she'll send him
- 354: I: Is not that an 18 years old cannot fetch water []
- 355: Moderator: Yes
- 356: I: ..but it's in the sense that you have junior ones at home what's the essence of you going. There many 18yrs people doing it []
- 357: Ed: more than 18

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- 358: I: ..and there are even some 20, twenty something that are still fetching they don't have people under them that can fetch water, they are still going. But whereby you have junior ones, you don't even care whether they will refuse, some will not refuse
- 359: Moderator: some will refuse?
- 360: I: Ha, when they talk, you say in those days when I was doing it, you were too small now, now it's your turn to do it
- 361: J: Yesss
- 362: E: And at times they do it as a competition. If they see their mates fetching water they will have the eagerness to
- 363: Moderator: join them in fetching water
- 364: E: Ehen.
- 365: Moderator: OK. Now lets look at this picture, we are coming to the last part of it now, do you think it's right for a child to go out to sell water? Have you ever bought 'pure water'?
- 366: (participants chorus Yes)
- 367: Why did you buy 'pure water'? Let's start from there.
- 368: J: Why []
- 369: E: Well I buy 'pure water' because, because am. when I feel thirsty then I buy 'pure water' that is how I buy 'pure water'
- 370: Moderator: Not because it is purer than ordinary water?
- 371: L: No O
- 372: C: No
- 373: E: No

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- 374: J: No
- 375: E: It's just available, just available []
- 376: I: Who says it's purer?
- 377: S: Most of them they are very bad []
- 378: J: Most of their 'pure water' is pure poison
- 379: I: It's pure poison
- 380: J: Some of them are not even purified; some are done at closed doors
- 381: E: Some may even add chemical which will make it taste and you don't know
that []
- 382: J: Like alum
- 383: E: ..you know they are they are bad
- 384: Moderator: So most are not as 'pure' as they claim?
- 385: (all participants chorus yes)
- 386: Moderator: That's the 'pure water' is just the name 'pure water'
- 387: (all participants chorus yes)
- 388: S: It's sachet water
- 389: Moderator: Have you ever experienced any symptoms after drinking 'pure water'?
- 390: (almost all participants chorus yes)
- 391: I: You have pain and they will not care, they would know it's been long and that
it have been contaminated, but they cannot waste their profit, they will still
put it in ice and it's cold, when you take it iced hen []
- 392: Moderator: Yea, I drank, I drank once it was so cold []
- 393: I: Yes

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- 394: Moderator: ..with small, small ice blocks inside it, the weather was so hot, you know we have a nice hot weather out here
- 395: E: And another thing, why they sell well is because of the coldness
- 396: Moderator: So it's not because of the purity?
- 397: E: Yes
- 398: S: Yes
- 399: Nd: Yes
- 400: I: When you drink one that is even warm you will not even enjoy it
- 401: E: You will not even touch it, you will forget about it
- 402: J: When you are very thirsty, even if you see the one under the sun you will buy and drink because of the thirst
- 403: Moderator: When you ever very thirsty because of the hot weather especially in the North (Northern part of Nigeria)
- 404: Have you ever heard of err this thing about Child Rights []
- 405: I: Uhun, uhun, I've been hearing it
- 406: Moderator: ..have you ever felt the anything because it, about child rights, they talk about child rights, any impact in terms of, have you ever seen anybody telling you about something that they are doing against children or something like?
- 407: Nd: Uhun
- 408: I: They only talk about hawking of a thing
- 409: Moderator: They complain about hawking?
- 410: I: Especially hawking because our country there are so many things that goes with it. Then it can get most girls, can get into, can be raped
- 411: (some participants join encouraged him with a yes chorus)

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- 412: Moderator: Indeed?
- 413: (A yes chorus)
- 414: Moderator: Is this true?
- 415: I: So much so
- 416: Moderator: So children that sell 'pure water' is prone to that risk?
- 417: Nd: Yes now
- 418: I: Yes
- 419: E: Yes
- 420: J: Yes very much
- 421: Moderator: But what about borehole? Don't they harass girls that go to boreholes to fetch water?
- 422: I: No
- 423: Ed: Yes they do
- 424: L: Yes
- 425: Moderator: The girls say yes, yes go on
- 426: J: In fact there is a particular borehole very close to my house, when a man goes there, a female goes there to fetch water, this man would say 'hey, good looking, if you are a good girl come here now'
- 427: Moderator: An old man?
- 428: J: Yes
- 429: Moderator: Terrible old man that one
- 430: (general laughter)

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- 431: J: And when you find young boys, they find girl going to a erm a borehole maybe, that maybe a young boy's parent put or something, they will say Oh, this girl fine oh, something like that, I don't think it's proper.
- 432: Moderator: I think I agree with you, because one should not be harassed because you've come to fetch water
- 433: I: Yeah
- 434: E: Afterall it's my money
- 435: Moderator: Yes now.
- 436: J: And you paid
- 437: Moderator: And it's a public business, you cannot harass anybody. I think that's wrong, I agree with you J. This is lovely then, this is beautiful because you kind of covered everything quickly. Don't mind that I wrote down all this questions O. It's what you say that I find important, not this line up of questions. So, let me make a quick summary, so we think err, I'll just make it brief, it is proper for children to fetch water.
- 438: J: No
- 439: I: Yes
- 440: S: It is not
- 441: J: It's not proper
- 442: Moderator: You do not agree?
- 443: I: It is proper
- 444: E: It is proper
- 445: Moderator: Children should not fetch water
- 446: L: No

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- 447: Moderator: Who are those that agree then, let's vote
- 448: Ed: I agree
- 449: S: I agree
- 450: C: Of course I agree
- 451: J: I agree
- 452: Moderator: Those that disagree
- 453: E: I disagree
- 454: Moderator: So it's a divided house then because it's like four, four. So we are divided on the issue whether children should fetch water or not. Ok, let's move to the next one. Do you think it is a 'helping hand' work to be fetching water for the house?
- 455: C: Yes
- 456: E: Yes
- 457: Ed: Yes
- 458: I: Yes.
- 459: L: Yes
- 460: J: Yes
- 461: S: Yes
- 462: Nd: Yes
- 463: Moderator: OK. Let's move on we have agreed on that. Ok, do you think it is child's work to fetch water?
- 464: (All participants chorus Yes)
- 465: Okay. But do you think it is 'light work' to fetch water?
- 466: (All participants chorus No)

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- 467: J: It is not 'light work'
- 468: Moderator: It's a difficult task
- 469: (All participants chorus Yes)
- 470: Moderator: So it's not []
- 471: J: Sometimes
- 472: Moderator: ..easy?
- 473: J: Sometimes
- 474: E: Yes
- 475: Moderator: Sometime. OK, that a very good answer and we have agreed well on that. OK let's look at, finally, what do you think, what's your view on this issue of water fetching?
- 476: J: I think it should be stopped and every house in the State, in the town should have a borehole at least, not that it is running outside or running inside your house but at least one that every tenant could fetch from that same pump either from emm, water board or something. every compound []
- 477: Moderator: there must be flowing water source there
- 478: J: ..but it must not be polluted or contaminated, it's a right []
- 479: Moderator: It's a right after all,
- 480: J: I think it's my right that I have water
- 481: Moderator: go on go on
- 482: J: ..at home. I cannot pay for water while I pay for house rent among all that. Pay for Nepa (electricity), pay for house rent and you still pay for water
- 483: E: While me, while me I suggest that if you stay in a compound where there is, there is no water no borehole, that they should go out to fetch water, find

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- 476: J: I think it should be stopped and every house in the State, in the town should
have a borehole at least, not that it is running outside or running inside your
house but at least one that every tenant could fetch from that same pump
either from emm, water board or something, every compound []
- 477: Moderator: there must be flowing water source there
- 478: J: ..but it must not be polluted or contaminated, it's a right []
- 479: Moderator: It's a right after all,
- 480: J: I think it's my right that I have water
- 481: Moderator: go on go on
- 482: J: ..at home. I cannot pay for water while I pay for house rent among all that.
Pay for Nepa (electricity), pay for house rent and you still pay for water
- 483: E: While me, while me I suggest that if you stay in a compound where there is,
there is no water no borehole, that they should go out to fetch water, find

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where there is clean water and fetch as much as they can carry without and after that store in the house or something like that.

484: Moderator: Any other suggestion? Go on it's recording

485: (referring to the other working recorder as the second stopped on reaching the end of it's cassette)

486: C: Government should try and provide pipe borne water for people so that there will not be the need to be going out to fetch or buy water. There is so much trouble with going out to fetch water so am advising that the government provide water for every house

487: (5)

488: Moderator: Any other suggestion? You have anything to say?

489: J: And I think water that...

490: Moderator: Go on

491: J: there should be water in every house in every compound, because the mere fact that water you use to wash your clothes, after that your clothes will be smelling rust. My, the water in my compound I don't use it to wash my clothes. To wash my clothes I have to go outside because after washing the clothes will be smelling rust, and when you just fetch it and put your white, the white will turn red because the water is red.

492: Moderator: Which area is this?

493: J: Very close to St Brigids

494: Moderator: Ok. Maybe is because of the way they built the borehole who knows?

495: I: No. She's not talking about borehole but the water coming from the water board. The pipes are rusted

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- 496:
- 497: J: There is no clean one among these dirty water they drink
- 498: Moderator: What kind of illness do people get from drinking this water?
- 499: E: Some have err, have bacteria, bacteria inside the water
- 500: Moderator: I heard some claim he had diarrhoea after drinking water. Have you seen Jemok Advert? There was one Jemok Advert that was saying 'my bello O my belle O'.
- 501: (general laughter)
- 502: I: That's why Jemok is selling
- 503: (all speaking at the same time)
- 504: S: Their water is good
- 505: Moderator: Ehen
- 506: S: Their water is good
- 507: J: I don't think there water is good because if its stays for a long time[]
- 508: When it stays for a long time, after supplying
- 509: [Speaker stopped to watch moderator change the cassette in the second recorder]
- 510: Moderator: No go on let me hear you. What did you say after, What did you say about Jemok?
- 511: J: When you []
- 512: C: Wait first let him []
- 513: J: Jemok water after about 2 weeks the water will be having taste. It will be looking somehow as if the water has been in gallon or no, in a drum for a very long time and the down of it is kind of very murky or so that kind of thing and

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it's bad so any time I want to buy water I will make sure I buy from the people distributing it.

514: Ed: We buy from people distributing it so that we will not buy the one that has taste.

515: Moderator: So there is of bit of problem about storage. Some are on the shelf for too long

516: (all participants chorus yes)

517: That means they expire. Shebi they use to place expiring dates

518: Nd: Some don't put it

519: I: Some say don't take it after three months of manufacture and something like that

520: Moderator: So they don't state it clearly, people like Jemok

521: I: Yeah

522: Moderator: You know this issue of water thing is quite touching, because most times we take it for granted, if I didn't go out of the country I won't have known that there are places, like you will be surprised, I fetched water as a child. But when you start going about you loose touch. When I got out now, I first stayed in the Scandinavian, Norway, you know it's a very cold country. But you find that I never saw a single child carry water. You can imagine coming from Africa where it's normal for children to carry water. But there no child carried water, they don't even wash plates for their parents for either you have a dish washer or you do it, they think it's parents job. But here it's the reverse, when I was small I washed plates in fact they will pack the plates and keep for me. But there they use and their parents wash for them and I told them this is wrong and then a friend called me and said why do I think it's wrong because

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from a different place does not make it right or wrong, that am not in a position to decide what is right for other people. But then []

523: E: Well I think that may be their culture

524: Moderator: Ehen, that's their culture. So they say I cannot condemn their culture, if you now look at water now, if you tell a child, because it's child work to carry twenty five litres of water on the head or imagine if you carry 20litres of water and you fetch it five times that's hundred litres a day. If you fetch it seven, for seven days, that's seven hundred litres. If you now multiply that by 365days to the end of the year, before you know it the child is fetching maybe all the water that em Akaz stores, is that light work again or is it a hobby?

525: (all participants chorus No O)

526: Moderator: But I know over there, there are children who their fathers are doing gardening and they come and be helping them so they call that helping hand or water the plants or mow the lawn with machine. But if you tell me to carry twenty five litres five times a day every day, do you think I will have the same opinion about the work?

527: L: No

528: Moderator: So the task of water collection and fetching, I don't know, I don't know how you feel about it? Don't let me bias you with how I feel. I don't understand it whether it's light work.

529: Ed: It's not at all light

530: I: No

531: Moderator: When they use the word light work, I don't know, do you disagree with that word light work?

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- 532: J: No
- 533: E: It's not light
- 534: I: But it has already been there. We came and we met it we have to take it like that []
- 535: J: When I stand I feel pain []
- 536: I: It's just like somebody coming to say 'why is this earth, this heaven without pillar?'
- 537: S: Yes
- 538: I: So you cannot ask such questions so it's my right to go and fetch water it's normal thing that I use to do at home
- 539: Moderator: So it's just a culture we met and we are just doing it?
- 540: S: We can't argue it
- 541: Moderator: OK then, now I understand it better than to say it is we that choose to do. We didn't choose it []
- 542: E: We met it so
- 543: I: We met it
- 544: Nd: We didn't choose
- 545: Moderator: I ran into a child that said 'I enjoy it'. I said well the child is free to
- 546: J: It's his own opinion
- 547: Moderator: Yeah. I feel that that's how you all feel I won't ask you as every body feels differently about things, but what we are trying to say is that what is the majority's opinion about it? Is there anything people hate that we can do something to correct and leave only those they enjoy? Like if you know, there is a girl that told me she doesn't like carrying water on her head, she feels

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some pain on her scalp and it cuts her hair. Especially when she plaits hair and carry something there is so much pain

548: J: I can't carry even 10litres on my head, because after that it is terrible for me, it's hell for me I will just go taking drugs

549: Moderator: That means you have headaches or something?

550: E: At times it depends on the home you find yourself, if you are living with somebody there is no way the person may send you out more than []

551: J: And most of the time when you carry []

552: E: ..and the good thing is that some may allow you to rest when you are tired []

553: J: ..heavy load, the child will have a stunted growth the child won't grow properly, she grow maybe the shoulder is kind of bent and the other one higher because of the weight

554: Moderator: There are growth deformities

555: J: Yes

556: Moderator: Okay, that's interesting too to watch out for.

557: (2)

558: Am quite glad you've covered the thing because these are many many things I didn't know of, like I like the bit on the rusted water. It skipped my mind, you have just reminded me fully. Then this issue of tradition, tradition, tradition. I wish we could change the tradition.

559: E: If we can do it it's better for us

560: Moderator: Cause we assume too many things that children do. Now is see five year olds, you might be shocked. I can count up to 30, I didn't interview them my research assistants did. I have people who work for me, you know I can't go

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round everywhere. They did the interviewing and when they bring the report back and then they see a six year old and not that the child claimed to be fetching water because what we did was that we went to the sources and stayed there. So when you come there we know you actually do it, because some people might claim to do what they don't do []

561: E: Most people like to do that

562: I: Yeah Yeah

563: Moderator: ..so when you see a six year old turn up there to fetch water, first time, second time, third time, that's one mistake they do, then you ask 'do you fetch water?' which to me and I tell them that is a very stupid question

564: (general laughter)

565: because you can see the person actually fetching water and you ask the person 'do you fetch water?' Just say how many times do you fetch water?

566: L: Yes

567: C: Yes

568: Moderator: If you ask me that as a child and am standing there with water I will ask you what do you think am doing?

569: (participants laugh again)

570: S: It's really a stupid question

571: Moderator: They ask the question and the six year old answers 'yes' but it's still a six year old. Some say it doesn't matter because they don't pay for the water because they spill some []

572: E: Most of it

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573: Moderator: So when children go to the sources they don't take money from them. I heard somebody say that

574: I: Yes. They do that at boreholes. We know they do that and I don't know why they do it. Because like when my daddy started to dig his borehole he let people fetch for more than, almost the whole day. People were coming and fetching, it was just freely open that day, before we started using the borehole.

575: Moderator: But when they dug my own borehole for me in my house, you may be shocked to know, the man told me that he had to leave it for 24hrs to be sure it's clean because they were pumping the water away and people were fetching and I tried to stop them and some felt that was wicked as the water was being wasted. But I felt if the man says the water is not good enough for me to drink, why should somebody else drink it. But why he's throwing it away is because it's not pure, but to them it's waste of water. But am not too anxious to drink my borehole water, as they pump it straight from the ground to the tank. It's not treated. That's in my house I don't know whether they have treatment plants in other homes O.

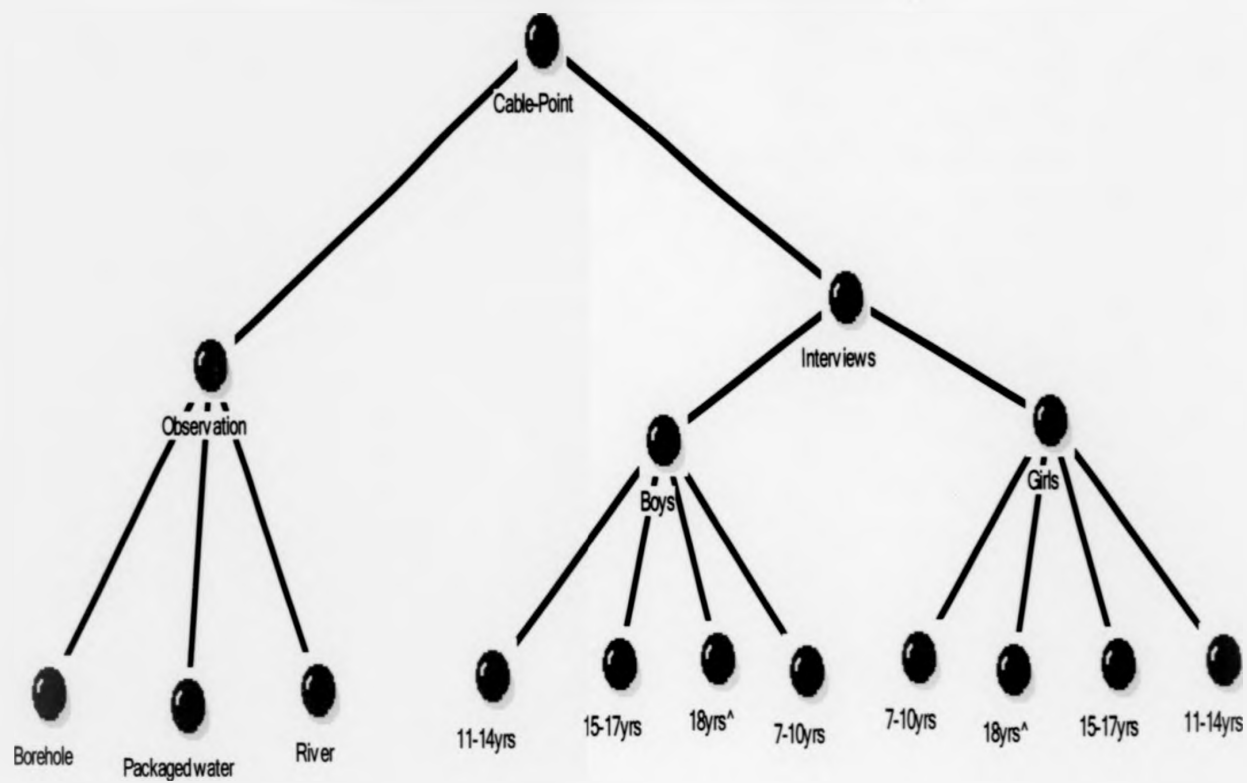
576: J: I don't think so

577: Moderator: Do we have treatment plants at home? You just pump it straight and they tell you it's pure and you drink it? There was the study in Lagos about borehole water and 90% of them had coliform count of more than 8 per litre of water which by WHO standard is impure, but that's the water in our homes. We don't see bacteria, but they are inside. Anyway I told them not to worry, I drink it with my wife and children because they say we are Africans []

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- 578: (general laughter)
- 579: 'germs no dey kill afrika man' (pigeon English)
- 580: (general accent)
- 581: J: Some people will say that 'your belle better pass', (meaning) is your tummy cleaner, so take it
- 582: Moderator: But does that make it right all the same?
- 583: (participants chorus Noo)
- 584: Anyway like me not disturb you further as it appears you cannot talk while drinking. Thank you very much.
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Appendix 16: The Case Model for Cable-Point community



Appendix 17: Nodal Search for 'Health Concerns'

Document 'CB8 ~11-14~', 1 passages, 507 characters.

Section 0, Paragraphs 137-146, 507 characters.

I: Is it right for people to sell water? Is it proper?

R: Yes

I: Why do you think it is proper?

R: Because if you have water in the house, you will find to drink, cook and to wash clothes

I: How do they obtain the water they sell?

R: It's from the underground. They pump it out from the ground.

I: Since it is coming out of the ground, is it good that they should sell it to you?

R: No

I: Why not?

R: Because sometimes there are particles in it and sometimes it is without particles and you collect from it

Document 'CB9 ~11-14~', 1 passages, 128 characters.

Section 0, Paragraphs 203-208, 128 characters.

I: Does the water appear clean all the time?

R: Yes it's clean

I: All the time?

R: Yes

I: You don't find particles in it?

R: Yes

Document 'CG13 15-17', 1 passages, 347 characters.

Section 0, Paragraphs 201-208, 347 characters.

Why would you buy one sachet for 5Naira, when you can get a can of 25litres at three for 10Naira?

R: That one is more hygienic.

I: What makes you believe it is hygienic?

R: ah hen, it's what they told us now.

I: But they told you it's pure.

R: ehen now.

I: Apart from being hygienic what more?

R: it's more pure than the other one, cold and pure.

Document 'Focus Group 3', 20 passages, 12728 characters.

Section 0, Paragraphs 38-42, 1231 characters.

26: Moderator: Yes now, we use water in so many things. But the problem now is this, where do we get this water we use for these things? We must be getting them from somewhere?

27: I: Yes

28: Moderator: They don't fall from the sky all the time. What are the sources of water?

29: S: Rivers, boreholes, taps..

30: I: Like in the urban sites now, it's hard to see river so what they have are the taps and boreholes that are built specially while you go to the rural areas where they are not privileged to have the boreholes, they go to streams and the most boreholes they have are not well taken care of so they prefer taking water from the stream because they believe it is natural that is not, they don't add chemicals in making them to purify them you understand so in the rural area they prefer it where they easily get, they prefer the stream water

where they easily get it, but the urban centers where we rarely hard to get stream or river water so we prefer the tap and the borehole. And some people really prefer the tap because it's highly treated from the board where it's being taken care of before it's brought down than the borehole which you purify by alum or some other chemicals which they use to make it clean.

Section 0, Paragraphs 43-45, 470 characters.

1: Moderator: I saw some boreholes while I was on my way here and they just put their pipes into the ground and pump the water straight into their tanks and people drink the water from these tanks. Do they purify such?

32: S: Yes

33: I: Yes they purify before taken, before putting them down. They add some chemicals. But most people, even with the borehole they don't drink it like that, they cook, some boil their water, after boiling then purify before drinking it.

Section 0, Paragraphs 46-47, 126 characters.

34: Moderator: OK.

35: I: But while for the tap some people don't feel like doing it because they feel it is already treated.

Section 0, Paragraphs 48-54, 743 characters.

6: Moderator: Does it mean all of us have boreholes in our houses?

37: (All chorus No OO)

38: Do you go out to fetch water?

39: S: Yes

- 40: J: Yes
- 41: I: We do have but..[]
- 42: J: As he said, the one in tap that they are cleaner because they come from the board (i.e. the Delta Water Board). The one close to my compound (yard tap) is always red because the pipe leading from the board, some are rusted so some are very bad you have to allow it to settle and even if you taste it, it tastes rust you know that even after boiling them you still have the rust taste in it. Then you find that it is useless most of the time. So I prefer going outside to fetch the one from the borehole and than the one that comes from the board.

Section 0, Paragraphs 222-234, 1054 characters.

- 209: Moderator: When you go out to fetch water, do you have any peculiar experience you might like to share, that you have even noticed, something you've seen []
- 210: S: Yes
- 211: Moderator: ..while fetching water?
- 212: S: Yes. In my water I see something like oil circulating around it after fetching it.
- 213: Moderator: After fetching it, you notice oil film on the surface of the water?
- 214: S: Yes
- 215: J: Even in some boreholes, you find that the owners don't wash them. Immediately they finish pumping water and you go and fetch water you will see some green particles []
- 216: I: like spirogyra
- 217: J: ...from inside the water
- 218: I: At times from the pipe, they don't
- 219: Moderator: But let's look at this, I took this []

- 220: E: I think too it's a matter of choice because you find out that there are many boreholes if you fetch where it's more clear so you can determine to go over to the place that is clean
- 221: J: But most of the boreholes they have, like the ones around my house it's only one that you

Section 0, Paragraphs 234-239, 359 characters.

- an say let me go here and fetch water and you are sure of the water you are fetching, others about five of them they are dirty they have
- 222: (tape ends and is turned over)
- 223: smell just like dead rat died inside the water
- 224: Moderator: So some taste like dead rat []
- 225: (general laughter)
- 226: J: died inside the water. The taste is very bad.

Section 0, Paragraphs 240-250, 1133 characters.

- 227: Moderator: OK. I just took the photograph recently; in my village they call it 'udu'. Have you ever seen this type of water container?
- 228: (The participants chorus yes)
- 229: Those days they use them a lot and those days they use to sterilize them. They put 'ugba' or something, make smoke cover them up. And then they fill it with water. When you drink the water from them they have this peculiar taste..[]
- 230: J: Yes s s
- 231: Moderator: ...and it kills the, all those gametes and mosquito larvae, tadpoles and those things that invade the water. Do they do that with all these plastic tanks we use today? Those plastic tanks we now put up?
- 232: (participants chorus No)

- 233: I: Normally []
- 234: Moderator: But there is a term I heard while interviewing some of your friends. What does it mean, I don't know what it means, somebody called the thing 'buta'. What is 'buta'? I don't know it O.
- 235: I: It's not 'buta', I don't know the name is not buta.
- 236: Moderator: Ehen. What is that thing then? I've been trying to imagine what it is.
- 237: I: The person probably just said []

Section 0, Paragraphs 251-270, 892 characters.

- 238: S: It's a big black drum
- 239: Moderator: Oh. a big drum?
- 240: I: Is it the plastic one?
- 241: Moderator: I don't know O, it must have been plastic
- 242: Nd: That buta is black they use to draw elephant on it
- 243: Moderator: Ehen. Is that it?
- 244: E: They call it buta and store water in it
- 245: Nd: It's big and black they use to call it buta
- 246: Moderator: OK. With cover
- 247: (participants chorus yes)
- 248: Moderator: That black plastic drum
- 249: (participants again chorus yes)
- 250: That's buta
- 251: J: That's buta
- 252: Moderator: Okay. Do they, I mean can somebody sterilize that one?
- 253: I: No o
- 254: Moderator: Because I know those things cannot really take heat, because these ancient ones they can take heat and are made of clay. These ones of plastics unless you wash them with soap and water it becomes difficult to keep them sterile?

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- 255: L: Yesss
256: C: Yes
257: J: Yes

Section 0, Paragraphs 271-276, 570 characters.

- 258: Moderator: And most of these tanks, I wonder whether they wash them regularly.
259: I: It use to take time and before you wash them you have to pay some people although some people will say where will I get the money to pay for all these people that will wash them for them
260: J: And the money they get from the water they think it is not enough to use it to pay for people to wash the tank []
261: E: While some people do wash their tank
262: Moderator: OK. Let me see (.) this [] (looking at a photograph)
263: J: Thank you very much

Section 0, Paragraphs 378-396, 1006 characters.

- 365: Moderator: OK. Now lets look at this picture, we are coming to the last part of it now, do you think it's right for a child to go out to sell water? Have you ever bought 'pure water'?
366: (participants chorus Yes)
367: Why did you buy 'pure water'? Let's start from there.
368: J: Why []
369: E: Well I buy 'pure water' because, because am, when I feel thirsty then I buy 'pure water' that is how I buy 'pure water'
370: Moderator: Not because it is purer than ordinary water?
371: L: No O
372: C: No
373: E: No

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- 374: J: No
375: E: It's just available, just available []
376: I: Who says it's purer?
377: S: Most of them they are very bad []
378: J: Most of their 'pure water' is pure poison
379: I: It's pure poison
380: J: Some of them are not even purified; some are done at closed doors
381: E: Some may even add chemical which will make it taste and you
don't know that []
382: J: Like alum
383: E: ..you know they are they are bad

Section 0, Paragraphs 397-410, 939 characters.

- 384: Moderator: So most are not as 'pure' as they claim?
385: (all participants chorus yes)
386: Moderator: That's the 'pure water' is just the name 'pure water'
387: (all participants chorus yes)
388: S: It's sachet water
389: Moderator: Have you ever experienced any symptoms after drinking
'pure water'?
390: (almost all participants chorus yes)
391: I: You have pain and they will not care, they would know it's been
long and that it have been contaminated, but they cannot waste
their profit, they will still put it in ice and it's cold, when you take
it iced hen []
392: Moderator: Yea, I drank, I drank once it was so cold []
393: I: Yes
394: Moderator: ..with small, small ice blocks inside it, the weather was so
hot, you know we have a nice hot weather out here
395: E: And another thing, why they sell well is because of the coldness

396: Moderator: So it's not because of the purity?

397: E: Yes

Section 0, Paragraphs 411-414, 161 characters.

398: S: Yes

399: Nd: Yes

400: I: When you drink one that is even warm you will not even enjoy it

401: E: You will not even touch it, you will forget about it

Section 0, Paragraphs 415-416, 239 characters.

02: J: When you are very thirsty, even if you see the one under the sun
you will buy and drink because of the thirst

403: Moderator: When you ever very thirsty because of the hot weather
especially in the North (Northern part of Nigeria)

Section 0, Paragraph 496, 288 characters.

483: E: While me, while me I suggest that if you stay in a compound
where there is, there is no water no borehole, that they should go
out to fetch water, find where there is clean water and fetch as
much as they can carry without and after that store in the house or
something like that.

Section 0, Paragraphs 501-508, 822 characters.

488: Moderator: Any other suggestion? You have anything to say?

489: J: And I think water that...

490: Moderator: Go on

491: J: there should be water in every house in every compound, because the mere fact that water you use to wash your clothes, after that your clothes will be smelling rust. My, the water in my compound I don't use it to wash my clothes. To wash my clothes I have to go outside because after washing the clothes will be smelling rust, and when you just fetch it and put your white, the white will turn red because the water is red.

492: Moderator: Which area is this?

493: J: Very close to St Brigids

494: Moderator: Ok. Maybe is because of the way they built the borehole who knows?

495: I: No. She's not talking about borehole but the water coming from the water board. The pipes are rusted

Section 0, Paragraphs 511-512, 140 characters.

98: Moderator: What kind of illness do people get from drinking this water?

499: E: Some have err, have bacteria, bacteria inside the water

Section 0, Paragraphs 515-519, 154 characters.

502: I: That's why Jemok is selling

503: (all speaking at the same time)

504: S: Their water is good

505: Moderator: Ehen

506: S: Their water is good

Section 0, Paragraphs 520-526, 730 characters.

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- 507: J: I don't think there water is good because if its stays for a long time[]
- 508: When it stays for a long time, after supplying
- 509: [Speaker stopped to watch moderator change the cassette in the second recorder]
- 510: Moderator: No go on let me hear you. What did you say after, What did you say about Jemok?
- 511: J: When you []
- 512: C: Wait first let him []
- 513: J: Jemok water after about 2 weeks the water will be having taste. It will be looking somehow as if the water has been in gallon or no, in a drum for a very long time and the down of it is kind of very murky or so that kind of thing and it's bad so any time I want to buy water I will make sure I buy from the people distributing it.

Section 0, Paragraphs 527-534, 494 characters.

- 514: Ed: We buy from people distributing it so that we will not buy the one that has taste.
- 515: Moderator: So there is of bit of problem about storage. Some are on the shelf for too long
- 516: (all participants chorus yes)
- 517: That means they expire. Shebi they use to place expiring dates
- 518: Nd: Some don't put it
- 519: I: Some say don't take it after three months of manufacture and something like that
- 520: Moderator: So they don't state it clearly, people like Jemok
- 521: I: Yeah

Section 0, Paragraphs 586-589, 1177 characters.

573: Moderator: So when children go to the sources they don't take money from them. I heard somebody say that

574: I: Yes. They do that at boreholes. We know they do that and I don't know why they do it. Because like when my daddy started to dig his borehole he let people fetch for more than, almost the whole day. People were coming and fetching, it was just freely open that day, before we started using the borehole.

575: Moderator: But when they dug my own borehole for me in my house, you may be shocked to know, the man told me that he had to leave it for 24hrs to be sure it's clean because they were pumping the water away and people were fetching and I tried to stop them and some felt that was wicked as the water was being wasted. But I felt if the man says the water is not good enough for me to drink, why should somebody else drink it. But why he's throwing it away is because it's not pure, but to them it's waste of water. But am not too anxious to drink my borehole water, as they pump it straight from the ground to the tank. It's not treated. That's in my house I don't know whether they have treatment plants in other homes O.

576: J: I don't think so

Document 'OB2 7-10', 1 passages, 173 characters.

Section 0, Paragraphs 165-168, 173 characters.

I: The water that flows in your pump, is it a very clean water or you have to purify it before you sell it?

R: A clean water

I: Clean water. So it's fit for drinking?

R: Yes

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Document 'OG11 7-10', 2 passages, 1134 characters.

Section 0, Paragraphs 153-174, 598 characters.

I: Have you ever been to the river?
R: Yes
I: What did you go there to do?
R: We went there to wash clothes and the dishes
I: You went there alone?
R: No
I: You went with whom?
R: I went with my relation
I: Which relation?
R: My sister Comfort
I: Did you swim in the river?
R: Yes
I: Do you know how to swim well?
R: Yes
I: Are you like a fish in water?
R: No
I: But you swim well?
R: Yes
I: Did you fetch the river water to take home on the day you visited the river?
R: No we didn't. We don't fetch the river water for house use
I: Have you ever drunk the river water?
R: No

Section 0, Paragraphs 175-180, 536 characters.

I: When it is raining do you collect rain water?

Appendix

- R: Yes
- I: How?
- R: When it's raining my mother and my other sister will place containers out in the rain to collect water. If I should ask to join them, my mother will emphatically refuse saying that when I enter the rain to collect water, at the end of the whole thing that I may either catch a cold or start feeling cold.
- I: Do you drink the rain water that your mother and sister collects?
- R: We don't drink it, we just use it to bath, wash clothes and dishes and clean the house

Document 'OG17 11-14', 3 passages, 1400 characters.

Section 0, Paragraphs 135-146, 468 characters.

- I: Have you ever been to the river?
- R: Yes
- I: What did you go to do there?
- R: I went there to wash clothes
- I: You went there alone?
- R: No. Previously I go there with my mother and my other relations
- I: So only washed clothes?
- R: We washed dishes, had our baths and fetched water home
- I: What did you do with the water you fetched home?
- R: We used it to bath and wash more clothes
- I: You did not drink it?
- R: My mother asked us not to drink it because it is river water

Section 0, Paragraphs 147-150, 263 characters.

- I: But river water is water, why did she say it is river water, therefore you should not drink it? Do you know?

Appendixes

R: She said we should not drink it because the Hausa's wash all kinds of things
into the river

I: That is to say that the water is contaminated?

R: Yes

Section 0, Paragraphs 193-206, 669 characters.

I: How long does the water serve you?

R: Eh?

I: How many days does the rain water you collected serve before it finishes?

R: Two weeks because my elder ones use it to wash motorbikes sometimes

I: So it lasts two weeks. That means you collect large quantities of rain water?

R: Yes

I: When it lasts for two weeks, do you notice any thing in the water?

R: Sometimes the roof zinc would not be clean so we have to filter the water
before storing it

I: What of the filtered and stored one, nothing happens to that after sometime?

R: No

I: Larvae don't appear in it, nothing appears in it?

R: We cover them because it's paint bucket with a cover

I: So you cover them?

R: humm

Document 'OG19 11-14', 3 passages, 762 characters.

Section 0, Paragraphs 161-164, 89 characters.

I: How did you feel? Did it cause any skin irritations?

R: No

I: Nothing happened?

R: Yes

Appendices

Section 0, Paragraphs 165-170, 240 characters.

I: Do you know of anyone who drinks the river water or have you tasted it before?

R: We have never tasted it but I've seen somebody that drank it

I: What did the person do with it?

R: S/he drank it

I: And how did the person feel?

R: Nothing

Section 0, Paragraphs 181-190, 433 characters.

I: During the raining season, how do you obtain water on a rainy day like this one?

R: We don't collect rain water

I: And why?

R: My mum does not like it

I: Did your mum tell you why she doesn't like it?

R: When it is raining, she will tell us to cover the water we have around as the rain water is not good because the zinc roofs are dirty.

I: So you don't collect it at all?

R: Yes

I: So when it's raining you stay in doors?

R: Yes

Document 'OG2 7-10', 1 passages, 441 characters.

Section 0, Paragraphs 135-144, 441 characters.

I: During the raining season, do you fetch water as much as you do during the dry season?

Appendixes

R: When it's raining, we place our buckets outside for water to collect inside it,
after that we use it to wash clothes, after washing clothes, we use it
to wash plates

I: Do you bath with it?

R: Yes

I: Does it irritate your skin when you bath with it?

R: No

I: Do you drink it?

R: No

I: So it is only the tap and borehole water that you drink?

R: Yes

Document 'OG20 11-14', 2 passages, 808 characters.

Section 0, Paragraphs 163-172, 367 characters.

I: Have you ever been to the river?

R: Yes

I: What you go there to do?

R: I go there to have my bath

I: Only to take your bath?

R: I wash my personal clothes sometimes

I: Only your personal clothes?

R: Yes, but I wash my uniform with pump water

I: Do you fetch water from the river to the house?

R: I do fetch for my father for instance when he wants to have his bath

Section 0, Paragraphs 173-180, 441 characters.

I: So you go to the river to fetch water for him?

R: Yes

I: Have you ever drunk river water?

Appendixes

R: Yes

I: Did you experience any symptoms or signs?

R: No

I: So it is good for you?

R: Yes. Although my mother said we should stop drinking it, but my father said it is good and that in the olden days they don't know anything about pump water and that the river was not as clean as it is now, so we should drink it and that it is good for the body.

Document 'OG21 11-14', 4 passages, 1318 characters.

Section 0, Paragraphs 69-77, 362 characters.

: Four litres?

R: Four litres

I: I don't understand. Four litres but you carry four gallons

R: They are very small

I: How are they?

R: They are small and I use to fill our buckets. We don't take water directly from our 'buta.'

I: 'Buta'? How does your buta look like?

R: Our buta is very big but not too big

I: The water stored in the buta, where do you fetch it?

Section 0, Paragraphs 187-190, 130 characters.

I: Do you fetch water from the river?

R: Sometimes we collect it to have our baths

I: Do you drink the water from the river?

R: No

Appendixes

Section 0, Paragraphs 197-200, 142 characters.

I: Do you drink the rain water?

R: No, we don't drink it

I: What then do you do with it?

R: We use to wash dishes, clothes and clean the house

Section 0, Paragraphs 275-280, 684 characters.

I: Can you tell one of your experiences at the river?

R: When people go to the river, they will be searching for the section of the river where there are no particles of dirt in the water and then they end up in the deep parts of the river and are carried away to their deaths.

I: Does it happen to children or adults?

R: It happens to both adults and children

I: Have you seen any?

R: I have seen it happen to children when I went out there to fetch water. One said to the other, push the particles aside and collect your water. The other decided move to the section without dirt to fetch water but that part was very deep. S/he drowned and Umaji people came to carry away the corpse.

Document 'OG22 11-14', 2 passages, 429 characters.

Section 0, Paragraphs 95-104, 366 characters.

I: When it's raining do you collect rain water?

R: Yes

I: How do you collect the rain water?

R: We place a basin under the zinc for water to collect inside it

I: Do you drink the rain water?

Appendixes

R: No

I: What do you do with it?

R: We use it to wash the dishes, wash clothes and to bath

I: Why is it that you don't drink it?

R: It's because it is dirty, the zinc is dirty

Section 0, Paragraphs 105-106, 63 characters.

I: The water from your borehole, is it clean?

R: Yes it's clean

Document 'OG4 7-10', 1 passages, 213 characters.

Section 0, Paragraphs 267-270, 213 characters.

I: Is the water good for consumption?

R: Yes it is good for consumption

I: Do you feel ashamed when your peers see you fetching water?

R: No I don't and they don't laugh at me and there is nothing to be ashamed of

Document 'OtB1 7-10', 1 passages, 482 characters.

Section 0, Paragraphs 53-62, 482 characters.

I: Then why did you say government provided water for you? If it's from the borehole that you fetch water, then how did the government provide water for you?

R: It's because I know government provided water for some people although I don't fetch from there

I: You are aware of government's provision?

R: Yes

I: But you don't fetch water from there

R: Yes

Appendixes

I: Why is it that you don't fetch government's water?

R: Because governments water is dirty

I: Do you have one near you?

R: No

Document 'OtB10 11-14', 2 passages, 861 characters.

Section 0, Paragraphs 208-223, 737 characters.

I: What is your impression of the water you fetch from that tank outside the house? I suppose it's a borehole source?

R: Yes. There are two black tanks there.

I: Black?

R: Yes with a pump (meaning a tap)

I: How is the water? Is it good?

R: It's clean

I: Yeah. Does it do anything to health?

R: No. They normally wash the tank

I: Regularly?

R: Yes. The tank is clean

I: They washed it?

R: Yes

I: I have never seen someone washing a tank before. How do they go about it?

R: They will, some people, you know that there tank is not like this (pointing to their storage drum). It's metal, they will climb up and use that thing that has cloth at the end []

I: That's a mop with stick

R: Yes. That's what they use

Section 0, Paragraphs 224-225, 124 characters.

: They put that inside the tank to wash it. That very good.
R: Then when they finish, they let the water out off the tank.

Document 'OtG11 11-14', 1 passages, 18 characters.

Section 0, Paragraphs 51-52, 18 characters.

Is it clean?

R: No

Document 'OtG17 11-14', 1 passages, 146 characters.

Section 0, Paragraphs 75-78, 146 characters.

I: What do you use water for?
R: We use it and bath and wash the cloth and wash plate
I: That water you fetch is it good for drinking?
R: Yes

Document 'OtG4 7-10', 1 passages, 187 characters.

Section 0, Paragraphs 113-118, 187 characters.

: The water you fetch, what do you people do with it?
R: We use it to cook and wash plates and wash clothes
I: Do you drink it?
R: Yes
I: Is it clean for drinking?
R: Yes it's clean

Document 'OtG8 11-14', 3 passages, 1194 characters.

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Section 0, Paragraphs 55-65, 634 characters.

- I: The one that flows inside your house that borehole, do you use it freely?
- R: Yes we use it freely because it's inside our compound we can use it
- I: The water that is in the borehole is it drinkable?
- R: Yes. No it's not drinkable sorry
- I: You don't drink it. Then where do you get the water you drink?
- R: My father buys pure water and kept it in the fridge and twelve or eleven bags and he will not pay
- I: He doesn't pay for pure water. Why?
- R: We don't know but they sell it free for him in Jemok
- I: They give it to him free at Jemok and he gets so much like that, like 12 big, big bags?
- R: Yes
- I: That has one bag of 20

Section 0, Paragraphs 66-72, 207 characters.

- R: Yes
- I: And then do you drink it anyhow?
- R: Yes
- I: When you are thirsty you will go and drink and nobody will say 'stop don't do that.'
- R: Yes
- I: You drink it anyhow
- R: Yes, am carrying it to school

Appendices

Section 0, Paragraphs 75-80, 353 characters.

- I: But get it and you drink it and everybody in the house drink pure water?
- R: Yes
- I: Free Jemok Pure Water?
- R: Yes
- I: Why do you think your father says you should be drinking pure water?
- R: Because the water will have sand inside when the water is going down sand will be entering through the pipes that why, so that our stomachs will not pain us

Appendix 18: Data Display

Nivo Health Symptoms

Appendixes

	22. Water source	28a. water access	28b. Reason	29b. Reported Symptoms
CB1-7-10-	?	?	?	?
CB10 -11-14-	Borehole and River	Restricted	to conserve household's w	?
CB11 -11-14-	Borehole	?	?	?
CB12 -11-14-	Borehole	Not restricted	?	internal heat
CB13 -11-14-	Borehole	?	NA	exhausted
CB14 -11-14-	Borehole	Not restricted	bcos it's me dat fetched i	exhausted
CB15 -11-14-	Borehole	Not restricted	bcos it's me dat fetched i	feel alright
CB16 -11-14-	Yard borehole	Not restricted	bcos we have a borehole at	weak and tired
CB17 15-17	Borehole	?	?	?
CB18 15-17	Borehole	?	?	?
CB19 18	Borehole	Not restricted	being an adult	growth deformities
CB2-7-10-	Borehole	Not restricted	bcos it's me dat fetched i	feel happy
CB20 18	Borehole	?	?	tired and abnormal
CB21 18	Borehole	Restricted	don't make use of water	?
CB22 18	Borehole	?	?	?
CB3-7-10-	Borehole	Not restricted	?	my body feels cool
CB4 -11-14-	Borehole	Not restricted	?	?
CB5 -11-14-	Borehole	Not restricted	?	Body and chest pains
CB6 -11-14-	Borehole	Not restricted	bcos I fetched it	weak and tired
CB7 -11-14-	Borehole	Restricted	bcos am wasting our m	no symptoms
CB8 -11-14-	borehole and rain water	Restricted	access only when necessar	w. barrow good, head= h
CB9 -11-14-	Borehole	Restricted	have to measure it ca	bodily injuries due
CG10 11-14	Borehole	Restricted	bcos of suffering to	exhausted
CG11 15-17	Borehole	?	?	?
CG12 15-17	Yard borehole	Not restricted	in-house connection	NA
CG13 15-17	borehole and rain water	Not restricted	in-house connection	NA
CG14 18^	In-house borehole	Not restricted	bcos we have a borehole at	?
CG1a 7-10	borehole and rain water	?	?	feel alright
CG2b 7-10	Borehole	Not restricted	bcos it's me dat fetched i	no symptoms
CG3 7-10	Borehole	Restricted	bcos of water availability	weak and tired
CG4 7-10	Borehole	Not restricted	?	?

Appendixes

	22. Water source	28a. water access	28b. Reason	29b. Reported Symptoms
CB1-7-10-	?	?	?	?
CB10 -11-14-	Borehole and River	Restricted	to conserve household's w	?
CB11 -11-14-	Borehole	?	?	?
CB12 -11-14-	Borehole	Not restricted	?	internal heat
CB13 -11-14-	Borehole	?	NA	exhausted
CB14 -11-14-	Borehole	Not restricted	bcos it's me dat fetched i	exhausted
CB15 -11-14-	Borehole	Not restricted	bcos it's me dat fetched i	feel alright
CB16 -11-14-	Yard borehole	Not restricted	bcos we have a borehole at	weak and tired
CB17 15-17	Borehole	?	?	?
CB18 15-17	Borehole	?	?	?
CB19 18	Borehole	Not restricted	being an adult	growth deformities
CB2-7-10-	Borehole	Not restricted	bcos it's me dat fetched i	feel happy
CB20 18	Borehole	?	?	tired and abnormal
CB21 18	Borehole	Restricted	don't make use of water	?
CB22 18	Borehole	?	?	?
CB3-7-10-	Borehole	Not restricted	?	my body feels cool
CB4 -11-14-	Borehole	Not restricted	?	?
CB5 -11-14-	Borehole	Not restricted	?	Body and chest pains
CB6 -11-14-	Borehole	Not restricted	bcos I fetched it	weak and tired
CB7 -11-14-	Borehole	Restricted	bcos am wasting our m	no symptoms
CB8 -11-14-	borehole and rain water	Restricted	access only when necessar	w.barrow good, head= h
CB9 -11-14-	Borehole	Restricted	have to measure it ca	bodily injuries due
CG10 11-14	Borehole	Restricted	bcos of suffering to	exhausted
CG11 15-17	Borehole	?	?	?
CG12 15-17	Yard borehole	Not restricted	in-house connection	NA
CG13 15-17	borehole and rain water	Not restricted	in-house connection	NA
CG14 18^	In-house borehole	Not restricted	bcos we have a borehole at	?
CG1a 7-10	borehole and rain water	?	?	feel alright
CG2b 7-10	Borehole	Not restricted	bcos it's me dat fetched i	no symptoms
CG3 7-10	Borehole	Restricted	bcos of water availability	weak and tired
CG4 7-10	Borehole	Not restricted	?	?

Appendixes

	22. Water source	28a. water access	28b. Reason	29b. Reported symptoms
OG19 11-14	borehole,	Not	?	pains neck
OG2 7-10	yard tap, riv	restricted	?	and head + he
OG20 11-14	borehole,	?	?	?
OG21 11-14	yard tap and	Restricted	just bcos u	?
OG22 11-14	borehole,	?	fetched not p	?
OG23 11-14	yard tap, riv	Restricted	so dat others	pains in neck
OG24 11-14	borehole,	?	will have to	and sometimes
OG25 11-14	yard tap and	Restricted	?	weak and
OG26 15-17	borehole,	?	?	tired
OG27 15-17	yard tap	Not	?	general body
OG28 18^	Borehole	restricted	bcos it's me	aches
OG3 7-10	Yard tap	Not	dat fetched i	headaches
OG4 7-10	Yard tap	restricted	bcos it's me	tired and
OG5 7-10	NA	?	dat fetched i	ache all over
OG6 7-10	NA	?	?	?
OG7 7-10	NA	?	?	?
OG8 7-10	Borehole	?	?	?
OG9 7-10	Borehole	?	?	?
O1B1 7-10	Yard tap	Not	?	exhausted
O1B10 11-14	Borehole	restricted	?	?
O1B11 18^	Borehole	?	?	weak and
O1B2 7-10	Yard borehole	?	?	tired
O1B3 7-10	Borehole	Not	dey always	feel happy
O1B4 7-10	Borehole	restricted	provide money	?
O1B5 11-14	borehole,	?	?	pains on my
O1B6 11-14	yard tap, riv	Restricted	if i do d	head
O1B7 11-14	borehole,	?	water will fi	headache and
O1B8 11-14	public tap	Restricted	don't like to	cold symptoms
O1B9 11-14	Borehole	?	use from it	neck pains
O1G1 5-10	?	?	?	?
O1G10 11-14	public tap,	?	?	exhausted
O1G2 7-10	well, storage	?	?	?
O1G3 7-10	Public tap	Restricted	we don't	?
O1G4 7-10	Public tap	Restricted	fetch much ev	?
O1G5 11-14	public tap,	Restricted	becos it will	tired
O1G6 11-14	storage tank	Restricted	not be enough	?
O1G7 11-14	Yard borehole	Restricted	bcos of power	exhausted
O1G8 11-14	Yard tap	NA	failure and t	?
O1G9 11-14	Yard tap	NA	NA	?
O1G10 11-14	Borehole	?	?	feel happy
O1G11 5-10	yard tap and	?	?	tiredness
O1G12 7-10	borehole	?	?	?
O1G13 7-10	Yard tap	?	?	tiredness
O1G14 7-10	Borehole	Restricted	mother will	exhausted
O1G15 11-14	Borehole	Not	say d water w	?
O1G16 11-14	Borehole	restricted	bcos I	general body
O1G17 11-14	Borehole	restricted	fetched it	aches

Appendix

	22. Water source	28a. water	28b. Reason	29b. Reported
OtG11 11-14	Borehole	Restricted	bcos of water availability	?
OtG12 11-14	Borehole	Not restricted	bcos I fetched it	tired + headaches
OtG13 11-14	Borehole	Not restricted	?	pains in both hands
OtG14 11-14	Borehole	Not restricted	bcos it's me dat fetched i	tired
OtG15 11-14	Borehole	?	?	I feel pains
OtG16 11-14	Borehole	Not restricted	bcos it's me dat fetched i	hungry and tired
OtG17 11-14	Borehole	Not restricted	bcos it's me dat fetched i	?
OtG18 15-17	Borehole	?	?	exhausted
OtG19 15-17	Borehole	?	?	?
OtG2 7-10	Public tap	?	?	?
OtG20 15-17	Borehole	?	?	?
OtG21 18^	In-house borehole	?	?	?
OtG3 7-10	Borehole	Not restricted	bcos am conscious of	sometimes I get tired
OtG4 7-10	Storage tank	?	?	I catch cold
OtG5 7-10	Borehole	Restricted	bcos she's my mother	?
OtG6 7-10	Public tap	?	?	exhausted
OtG7 7-10	Borehole	Restricted	?	feel alright
OtG8 11-14	In-house borehole	?	?	?
OtG9 11-14	Public tap	Not restricted	bcos I fetched it	no symptoms

Appendix 19: Research with Children

Recent developments, of which UNICEF is an active participant, have had a remarkable effect on this approach to children's research (UNICEF 1989). Prior to this, investigators have preferred to ask adult respondents such as parents or teachers to report on children rather than to ask the children themselves. This in part, had been because of concerns about the cognitive ability of children. The fact that such studies are often adult-centric is however never acknowledged (Morrow 1994). The practice then, is to regard children as subjects of proxy information or worse still, invisible. When children are taken into consideration, the concern is with the impact of children on adults rather than focusing on children as social actors in their own right. A British MRC National Survey of Health and Development work for example focused essentially on childhood influences on adult health (Wadsworth and Kuh 1997).

This decade has however seen an increasing demand for research that focuses on children as participants in their own rights rather than as subjects or objects (Woodhead and Faulkner 2000). Paradoxically, Pearce and Falola attribute the growing interest in African children to government's pressure for population control. They argued that the focus on children in this case is to stem their appearance into the world as illustrated by their aggressive distribution of contraceptives (Pearce and Falola 1994). Children both in the North and South may have been excluded from general population samples which are usually drawn from adult population (Scott 2000). In reality, children in the South are however not excluded from the work and economic responsibility of the adult world (Johnson, Hill et al. 1994; Amnga-Etego 2001). This was not initially apparent, because past studies utilises data regarding adult's tasks and ignores chores that children more often perform (Gager, Cooney et al. 1999).

Although scholars have called for greater inclusion of children's understandings in sociological research, most studies on family roles and relationships are still

adult-centred (Milkie, Simon et al. 1997). However, some will attest that children do have voices and express their opinions (Johnson, Hill et al. 1994; Morrow 2001; UNICEF 2002b). They have been known to exert a reasonable influence on families and households functions (Satterthwaite, Hart et al. 1996; Amnga-Etego 2001), and a child's ability to perform household's chores and care for younger siblings can be crucial especially for working parents (Solberg 1990).

A number of studies have been carried out with children (Johnson, Hill et al. 1994; Matthews, Limb et al. 1999; Kruger and Chawla 2002; Mann 2002).⁹³ When compared to adults, there is relatively little material on the experiences of children. Thus empirical data collected on society can be improved significantly by including the accounts of children.

However, there are some practical and methodological problems that are related to language use, literacy and cognitive development. Concerns on data quality has been expressed, especially the ability of an adult to obtain reliable and valid accounts from children⁹⁴. Finally, working with children is viewed as too problematic with practical and ethical issues that most researchers might wish to avoid (Scott 2000). In conclusion, 'practice inertia' on the part of a number of investigators may have been responsible for the exclusion of children and the inclusion of adult respondents in most investigations, even when the issues require information from children.

⁹³ Examples include studies on young people's participation and representation in the society; on combating child labour (Woodhead 1999) and on the implications of children's experience for policy, planning and practice (Bartlett 1999; Mann 2002).

⁹⁴ This is because adults are usually accredited with greater knowledge, experience and power. Backett, K. and H. Alexander (1991). "Talking to young children about health: methods and findings." *Health Education Journal* 50(1): 34-38.

Appendix 20: Field Observation of Water Sources

Field Observation.

The first part of this chapter presented descriptive data from field observation of selected water sources within the two communities. Starting first with Cable-Point community, then moving on to Otu-Ogwu community, I presented descriptive accounts of the activities at the water sources while attempting to draw attention to the activities of children in relation to the activities of adults in the same situation.

In the second part of this chapter I presented descriptive data from the 'one day working life' of six children that frequently use the selected water sources in order to compare the time spent on water collection and the time spent on other household's chores. I was compelled to focus my attention on this comparison because previous studies suggest that children, especially girls carry out the task of water collection in conjunction with other household duties (Francavilla and Lyon 2003; Guarcello and Lyon 2003). I concluded the chapter with a descriptive account of a water collection journey to the River Niger.

Selected Water Sources

As reported in chapter 3, three (3) sites were identified in Cable Point and four (4) in Otu-Ogwu communities during the course of the informal observations and trust building contacts for formal observations. The aims of the field observation of selected sites were:

1) The observations of actual tasks of water collection; (2) To identify those who are involved and (3); to describe how these tasks were carried out.

Four types of community water sources were selected and observed. These were:

- a) Borehole water locations—Jarret Street and Necab borehole locations in Cable-Point and Otu-Ogwu communities respectively
- b) River— Field observations were conducted at the banks of the River Niger in both communities
- c) Packaged drinking water depots—Do-Good and Butebe-Butebe depots in Cable-Point and Otu-Ogwu communities respectively
- d) Pa Johnson's yard-tap in Otu-Ogwu community.

Jarret Street Water Borehole in Cable-Point

The setting

Jarret Street borehole is on the east side of cable-point at an estimated distance of about 1km from the bank of the River Niger. There were two buildings of four separate flats within the compound housing the borehole. The entrance is a single huge metal gate with beautiful flowers lining the inner wall area. The water sources are two drill points each networked to serve the dual functions of personal supply—for household's consumption and commercial supply—for water vending activities.

The water pumped out from the 'personal supply' sumo-pump was temporarily stored in a 500 litres capacity plastic storage tank that was linked to the landlord's apartments by one and half inch pipes. The water pumped out from the commercial drill source was linked by pipes to four tanks in a linear connection. There were two metal tanks, each of 2500 litres capacity, coated with black paints to prevent rust and two plastic tanks of 500 litres networked together in this linear arrangement. Each tank had a single outlet tap for customers to collect water.

The people involved in water collection

The people involved in the water collection activities at the Jarret Street water borehole are Mai-ruwas (water vendors), women and children. Washing of either clothes or other items within or around the premises of the borehole was not allowed. During the one week field observation, simple counts of people that collected water from the source revealed that 12% were women, 9% were men while 79% were children.

Activities

Field observation revealed that Jarret borehole opens for water vending business at about 6am in the morning and closes at 8pm. Water collection takes place within these hours only stopping for one hour break from 12noon -1pm. The attendant (a 14yrs old boy) in-charge of collecting money, records the sales and balance of customers in a small notebook, particularly that of the Mai-ruwas, who habitually deposit money for several water collection trips in advance.

The container size determines the price that was charged for the water collected. A 10 litre container costs 2Naira (8 British cents) while a 20-25litre container costs 3Naira (1.2 British pence). Mai-ruwas however pay a discount rate of 2Naira 50kobo (1p) for 25litres. The price charged for water collected was also determined by type of power supply at the time of water collection. When there is power outage and the borehole is powered by the standby generator and additional 50kobo (2 cents) is added across all price ranges. Payment as a rule must be made before collecting water.

Children of 5yrs and below may be permitted to collect water with very small containers of about 2litres free of charge (probably too small to be paid for and most of which is lost through spilling before they get home). It did not take long for me to notice that there was provision for a free drink of water whenever the need arises provided a cup or bottle was used. The borehole attendant was able to calculate the advance payments as against water collected by simply drawing short horizontal lines against the names of the buyers to show how many times s/he has come to collect water and the balance for such pre-water collection deposits.

The Mai-ruwas (Water vendors)

The Mai-ruwas or water vendors of Cable-Point are men and boys of Hausa/Fulani extraction whose major occupation is collecting water for commercial purposes. They are usually the first to arrive at borehole and some may be seen at the gate before 6.30am waiting for the attendant to open the gate. These Hausa/Fulani men and boys ranging between 16-40yrs operating in the interior areas of Cable-Point carry water with two twenty-five-litre aluminium coated tin gallons suspended by two ropes from a wooden pole (about 1m long) placed across their shoulders.

The Mai-ruwas of Cable-Point hawk water from door to door supplying households that can afford to pay for it. Their customers are usually people who need more water than can be supplied by their individual household members (e.g. hoteliers, owners of restaurants and local eating joints etc). A total of thirteen

Mai-ruwas (three of whom were boys of between 16-17yrs) fetched water from the borehole on Jarret Street spending on the average between 2-4mins from their time of arrival to the time of their departure.

After rinsing out their vessels at the start of their water vending business in the mornings, most failed to rinse or wash them through out the rest of the day's water fetching visits to the borehole. Although most reside within an estimated 100m radius of the borehole, their commercial activities may take them as far as 500m radius (estimated) with an average of between 15-20 water collection trips per day. The Mai-ruwas pay 5Naira (i.e. 2 British pence) for the two tins of 25litres each (i.e. a total of 50litres) and sell the same quantity for 20Naira (8p).

Men: Men residing within an estimated distance of 50m from the borehole collected water with between 20-25 litre jerry cans for household use during the period of observation. They simply filled the vessels with water without spending time to either rinse or wash them. Two of the men carried their water containers home on their motorbikes while others simply used their hands.

Women: The women that visited Jarret Street borehole reside within an estimated 50m radius of the borehole. They used mostly metal basins and buckets of between 20-25 litres. Some of the women spent some time rinsing-out or washing their basins and buckets. They may wait when necessary for their turn to fetch water and sometimes mediate between children quarrelling over turns to fetch water. Most times, these women leave the borehole source within 2-6mins of their arrival.

Children: The children that frequent this water source resides within an estimated 100m radius of the borehole location, carrying buckets, plastic basins and bowls, plastic paint buckets and jerry cans of between 10 to 25 litres capacities. Most of the children neither rinse-out nor wash their vessels before fetching water. Some spend time socializing before and/or after fetching water, spending between 4-15mins from their time of arrival to the time of their departure from the water source. Some of the children use either wheelbarrows or pushcarts to carry water containers while a few carry their water containers on their heads.

The girls that visited the borehole during the field study were between 7-11yrs. Only two girls of between 12-17yrs used this water source during the same time period. One of the girls was subsequently recruited for individual interview. They usually spend between 2-15mins collecting water, while some carry between 10-15litres of water on their heads from the borehole to their homes. Others carried between 20-30 litres of water with wheelbarrows or pushcarts. On the average, these girls make between 5-10 water collection trips per day. Girl's water collecting activity appears not to have any fixed pattern as water collection may begin at any time during the opening hours of the borehole and continue to about 6.30pm when it finally stops.

Boys of between 8-13yrs were those that repeatedly visited the borehole at Jarret Street. They carried between 10-25 litre containers—mostly plastic jerry cans to collect water, made an average of 3-5 trips and spent between 2-5mins at the borehole on every trip. Most of the boys used wheelbarrows and pushcarts to carry several water containers at a time. Only a few of them carried water on their heads. Boys of between 15-17yrs did not use this water source during the field observation. Those that did (Mai-ruwas) were for commercial reasons.

Necab Borehole in Otu-Ogwu Community

The Setting

Necab borehole is enclosed in a fenced compound located at the North-end of Otu-Ogwu community. Access into the compound was through a single gate at the back that led directly to the five-room apartment house reserved for Necab workers. While several workers may be seen moving about within the compound, only two ladies were actually responsible for both the storage and sale of water. Although the borehole is linked to the public electric power supply, a 5.5 KV standby generator capable of supplying electric power for 24 hrs is housed next to the workers building.

A single drill operating underground sumo-pump, supplies water to storage tanks in a network of pipes. There were five (5) 500 litres capacity plastic storage tanks raised on 18-20 feet high steel sittings and three (3) steel tanks of about 1000 litres capacity each at the ground level. Necab had a total water storage capacity of 5,500 litres between these eight (8) tanks. A network of pipes connects the storage tanks to four (4) water outlets outside the fence but controlled from within the compound. This system provides checks on who collects water and the volume of water collected. Payment as a rule must be made to the borehole attendant/s via a small connecting window in the wall of the fence before the taps are opened to supply water.

Two 15cm diameter hoses, about 12 metres in length were connected to two of these four water outlets to fill large containers and basins while still on either their owners heads or wheelbarrows thus avoiding the need to seek the attendant's assistance to lift and place water containers either unto the owner's heads or wheelbarrows. The general surrounding of Necab was wet with water leaking from the storage tanks, hoses and the water overflowing from their customer's containers as they were being filled. The quantity of water lost through leakages was estimated at about 1,000 litres daily. Little attention is however paid to these losses as the overhead storage tanks can be readily refilled by pumping water from the underground supply.

The People involved in water collection

The people involved in the water collection activities at Necab borehole were Men, women and children. During the one week field observation, simple counts of the people that collected water from the source revealed that 3% were men, 12% were women while 85% were children.

Activities.

Data from field observation conducted between 7am and 12noon and between 5pm and 9pm when the Necab closes for business showed that children, women and a handful of men collect water from this water source. Some of the children habitually arrived at the gate of Necab before 7am although the attendants open for business at 7am. As in Cable-Point, the size of their containers determines the price charged for the water collected. A 10 litre container costs 2 Naira (8cents) while a 25 litres container costs 2Naira 50kobo (1p).

The price is also determined by the power source at the time of water collection. When there is power outage and the borehole is powered by the standby generator and additional 50kobo (2cents) is added across all price ranges hence a 10 litres container costs 2Naira 50kobo as against 2Naira. Payment as a rule must be made for water collected from this source. As in Cable-Point, water is occasionally given free of charge to children between the ages of 5yrs-7yrs because of the very small containers they brought to collect water. At other times, the payment may be waived either after a convincing appeal to the attendants or when some friends who live close to the borehole come to fetch water.

Men residing within 100m of the borehole visited the borehole during the period of the study. On the occasion when one middle aged man had to collect water with three 50 litre jerry-cans, one of the two 15 diameter hoses was used to fill the jerry cans with water while still in the boot of the car, taking between 4-5mins from the time of arrival to departure from the borehole site. The other men that fetched water from the borehole used plastic buckets and plastic paint buckets to fetch water to wash cars, motorcycles, and their clothes in front of Necab's fence.

The women that collected water from Necab reside within 100m radius of the borehole. They used mostly metal basins, jerry cans or plastic paint buckets of between 20-25 litres capacities, collecting water and leaving the borehole source between 3-5mins of their arrival. Some of the women rinsed out their containers while others simply placed them under the taps and collected water. Occasionally, women come out to the borehole to fetch erring children that must have stayed behind at the borehole to play with friends.

The children that visit Necab to fetch water reside within an estimated distance of 200m radius of the borehole location. They used buckets, plastic basins and bowls, plastic paint buckets, jerry cans of between 10 to 25 litres capacity. They normally spend some time socializing before and after water collection spending between 3-15mins from their time of arrival to their time of departure. Some spent time playing around the water taps comparing water containers while a few of them were engaged in car washing business near the gate. None was observed to have rinsed out their containers particularly the jerry cans. A few of the children used either wheelbarrows or pushcarts to carry water while most of the others especially girls carry their water containers on their heads.

In the mornings, girls arrived mostly in groups of threes or fours. A lot of children-adult negotiations take place between the girls and the attendants. They sometimes cheat to collect more water than they paid for and occasionally engage the attendants in prolonged arguments. They spent between 3-5 minutes to fetch water and carried between 10-25litres of water on their heads while a few others use wheelbarrows making between 9-15 trips before going to school. In the evenings, the girls appeared more relaxed and were obviously not in a hurry to leave the borehole spending between 5-15 minutes before or after collecting water socializing.

The boys come out a little earlier than the girls in the mornings carrying between 10-25litre containers—mostly plastic jerry cans to collect water. They made an average of 7-12 trips spending between 2-3mins at the borehole on every trip. A few of the boys used either wheelbarrows or pushcarts and carried several water

Appendixes

containers at a time. Those residing near the borehole used wheelbarrows or pushcarts while those a little distance away had to carry theirs on their heads because of the bad terrain. The bigger boys most of the time intimidated the younger boys and girls for turns to collect water. However, these big boys (16-17 yrs) usually collect water for their car washing business opposite Necab fence as well as for the production of 'local pure water.'⁹⁵

⁹⁵ About 50mls of borehole water tied in small transparent nylon bags then refrigerated before being sold frozen to the members of the public.

Field Observation at the Cable-Point Riverside

The Setting

The River Niger courses east from Otu-Ogwu through Cable Point peninsular creating two banks known to locals as 'Marine' on the western side and the 'Cable' on the eastern side. On the 'Marine' side, a tarred road coursing through the community slopes sharply down and terminates at the bank of the river. The area suffers continuous erosion although the road appears unaffected. Old brick houses reminiscent of the colonial era and makeshift shops built with planks, line both sides of the road to the river bank. The town's abattoir is along this road shedding its wastes contents into one of the water drains that flows directly into the river.

The river bank area mostly referred to as 'Cable' lies on the south eastern end of the cable peninsular. The route to the beach begins from the end of Jarrett Street. It is a rough bush path lined with refuse dumps on both sides. The houses along this path are mostly mud houses and a few old fashioned brick houses.

The People identified at the river bank

The overview of the river from the cable beach is pleasant presenting a unique natural river scene. Casting a cool shade over the otherwise hot river bank is a huge tree growing a few feet from the edge of the river. Drug peddlers and addicts (between the ages of 14-35 years) converge under the shade of this tree and can be seen dealing in marijuana and other unidentifiable substances. A little distance away from the tree, some gamblers are engaged either in the game of cards or placing bets on the game of table tennis.

On the sandy banks of the river in 'Marine' and 'Cable', men, women and children can be seen engaged in different activities. Most of the men were busy excavating sand, commercial laundry and the ferry business. Women were seen busy with different trading activities, while children were washing of plates and other household's utensils as well as fetching water from the river.

During the one week field observation, counting the people present on the beach showed that 23% were men, 64% were women while 13% were children. The counts of the people that actually collected water from the river for household's use however revealed that out of the men present at the bank, only 7% actually fetched water for household's use. Six percent (6%) of the women and 46% of the children present at the river bank fetched water from the river for household's use.

Activities.

The data from field observation of the river banks revealed that people start arriving at the river bank from around 6.30am in the morning, when the boats and canoes conveying passengers and goods begin to dock. All through the day, men, women and children go about their different activities, ending the day at about 8.30pm.

The men that frequent the river bank at Cable-Point come from areas within 1km radius and are engaged in various activities which include sand excavation, fishing, commercial laundry work and dyeing of textile materials—known locally as tie and dye. Others were engaged in recreational activities such as table tennis, sight-seeing or swimming in the river. The river bank also serves as a meeting place for drug peddlers and users. Only eleven (11) men, out of the one hundred and fifty-four (154) that visited the river bank during the period of the field study, actually collected water for household use. These men reside within 50m of the river and spent less than 1min collecting between 5-20 litres of river water with 5litre gallons, metal or plastic buckets.

Women come from all over Asaba to the river bank at Cable-Point primarily for trading activities. Traders and goods travelling along and from the other side of the river also use Cable-Point as their docking and trading depot⁹⁶. A few of the women however fetched water, wash various household's items—clothes, food stuffs, and bath in the river away from the areas occupied by men. Others stayed around to chat with other women by the river bank.

⁹⁶ Trading activities takes place at Cable-Point river bank only in the early hours of the mornings. In the evenings, all trading activities move to the nearby market.

Out of the four hundred and thirty-one (431) women that used the beach during the period under study, only twenty-seven (27) of them—and these women reside within 50m of the river—collected water with either buckets or basins for household's use. They spent between 1-3mins, depending on the number of water containers, collecting water from the river and carrying between 10-25litres of water on their heads to their homes. Others stayed by the river banks to wash clothes leaving the banks without fetching water for home use.

The activities of the children at the river appear to be limited to the mornings and evenings with little or no activity in the afternoons. Only two or three children below the age of 18yrs were seen loitering around the river bank during afternoons when the drug peddlers and users began their activities. Out of the 88 children that visited the River Niger during the field study, 76 of them collected water for household use.

Cable-Point boys usually arrive at the river bank along with the girls at about 7am carrying either 10litre gallons or jerry cans of between 10-20 litre capacities. They reside within 100m radius of the river and mostly boys of between 7-13yrs descend down to the river in the mornings for water collection. These boys climb back up carrying water on their heads through the steep refuse and weed invested sandy bank, heading straight for their homes using the various paths and passages between houses with the nearest located at about 30m from the edge of the river.

Only those children residing within the vicinity of the tarred marine road make use of the road. There was hardly any communication between the boys as they go about their water collection in the mornings making between 3-6 trips to the river each trip taking less than 10mins. Ad from 8am upwards, older boys of between 14-17yrs starts appearing at the river side. They seldom engage in household water collection but are mostly involved in commercial activities such as fishing, car and motor bike washing and sand excavation. A few come out there to smoke marijuana.

Water collection stops in the afternoons, but other activities continue on the river bank. After 4pm in the evenings, water collection resumes again. This time, boys of between 5-6yrs join the older group (7-13yrs) in the water collection task

fetching water with small bowls or 5litre plastic gallons and making on the average 2-3 trips. Though they may exchange pleasantries between themselves either on the way to or from the river, most of the boys do not hang around the river bank with the exception of a few washing clothes or swimming in the river.

Girls start appearing at the river banks in twos and threes with boys from around 7am. Like the boys, they reside within 50m radius of the river and mostly girls of between 8-11yrs are the ones involved in the morning water collection. They make roughly 5 to 10 trips carrying between 10-25 litres of water on their heads up the steep river bank to their homes using, with the boys, the various paths and passages between the houses. Some make use of the tarred marine road as well.

Each water collection trip takes between 5 to 15mins depending on the distance of their homes to the edge of the river.. The girl's morning activities in the river are usually very brief spending less than 5mins at each task. Some may wash clothes but mostly during the weekends. One or two girls of between 14-17yrs sometimes come to the river to wash market goods in the mornings. Girls are hardly seen at the river bank in the afternoons.

In the evenings, the girls come out again for water collection. This time, they appeared more relaxed while carrying out their task of water collection. Some use the evening to store enough water to avoid coming to the river the next morning. They make on the average 10-15 trips collecting water while doing some washing. Girls of between 13-17 yrs seldom come to the river in the evenings

Field Observation of Otu-Ogwu Riverside

The Setting

In Otu-Ogwu, the river bank forms the western boundary of the settlement. A steep 35 ft descent along a slippery steep slope leads to the river's sandy bank littered with old car engine blocks used by fishermen to anchor their canoes. The water is muddy-green in colour with floating seaweeds scattered on the swift flowing river. Fish snares, nets and cane baskets used by fishermen dots the shallow shores of the river.

Otu-Ogwu's river bank is used for various activities—sand excavation, petty trading (yams, vegetables, dried meat and fresh fish), commercial laundry and local textile dyeing activities. A little distance from this spot, women and children fetch water, wash clothes and food stuffs, and have their baths in the river.

The people Identified at the river side

Men, women and children are involved in different activities on the bank of the river. Those that actually go there to fetch water for household use were small when compared to the number of people counted at the river bank. Field observation showed that out of the two hundred and eighty-nine people counted on the beach, 23% were men, 33% were women while 44% were children. However, only 9% of the men present at the river bank actually fetched water for household's use. 17% of the women fetched water domestic use, while 36% of the children present on the river bank fetched water for household's use.

Activities

Data from the formal and informal observation revealed that activities starts at about 6am in the morning and ends at about 7.30pm. Men come from areas within 1km radius to Otu-Ogwu for sand excavation, fishing, farming, commercial laundry work and dyeing of textile materials. Only six (6) men, out of the sixty-seven (67) that came to the river during the period of the field study, actually collected water for household use. These men fetched water with small plastic and metal buckets of between 10-20litre capacities carrying the water for an estimated

50m to their homes. Three of the men stayed on the river bank to wash clothes while the other three simply fetched water and left.

Women visit the river bank primarily either to engage in petty trading or farm the land along the banks of the river. These women come from different areas of Asaba as far as 2km from Otu-Ogwu. Others come to the river either to collect water or wash various household's items and possibly bath in the river. Making up this second group were the women who reside within an estimated distance of 100m of the river. They collect water with either buckets or basins carrying between 10-25litres of river water on their heads to their homes. Some use this opportunity to socialise with neighbours and friends. Out of the ninety-six (96) women that were counted at the river bank during the period of the study, only nineteen (19) of them collected water for household's use.

The activities of the children at the river appear to be limited to the mornings and evenings with little or no activity in the afternoons. Only on handful of children were seen swimming, washing clothes or collecting water in the afternoons. Out of the 126 children counted at the river bank during the field study, only 71 collected water for household use.

Boys leave for the river earlier than girls to collect 'settled water'⁹⁷ arriving at the river side as early as 6.30am carrying either 10litre gallons or jerry cans of between 10-20litre capacities. These boys reside within half a kilometre radius of the river and mostly boys of between 9-14yrs. Younger and older age groups were usually not seen at the river that early.

Ascending the steep 35 ft slope back to the community was a tricky and tedious task because of the early morning dew and the water that spill from their water containers as they return from the river makes it very slippery. A high degree of dexterity and caution was required to climb up the slope as a slip on the slope could be fatal. The boys hardly exchanged pleasantries between themselves each

⁹⁷ Certain areas of the river are used for fetching drinking water. Children move a little up-river in order to fetch water that had not been turned murky by the activities of people upland. However, the chances of fetching water in this manner is only improved by waking up and going to the river before others do.

making between of 5 to 10 trips to the river. From 7am, older boys of between 15-17yrs start appearing at the river bank. They seldom engage in household water collection but are mostly engaged in commercial activities such as fishing, textile work (tie and die), laundry work, car and motor bike washing, sand excavation, and farming.

After a lull in the afternoons, the activities at the river side peak again between 3.30pm to 5pm and finally stops at around 7:30 pm. In the evenings, boys of between 5-6yrs join those in the 7-14yrs bracket in household's water collection, carrying mostly plastic 5litre gallons and 10litre jerry cans. In the evenings Cable boys generally spend a lot of time socializing and having fun—swim, play ball in the river, meet up with friends and discuss things of common interest.

Girls arrive in little groups of three to five at the river side from 7am, a little later than the boys. Like the boys, they reside within half a kilometre radius of the river and mostly girls of between 7-14yrs were the ones involved in the morning water collection. They make roughly 5 to 7 trips carrying between 10litres to 25 litres of water on their heads up the now very slippery slope due to the earlier activities of the boys as well as the water spilling from their own basins, buckets or jerry cans. This slows them down considerably as great care is required to avoid injury from slipping on the dangerous slope. Each water collection trip takes between 20 to 25mins. The Cable girls morning activities were brief and only 3 girls of between 15-17yrs visited the river to collect water in the morning during the period under observation.

In the evenings, girls appear more relaxed while carrying out the task of water collection. Some visited the river bank simply to socialise with friends while others use the evening to store enough water to avoid coming to the river the next morning. They make on the average 10-15 water collection trips while doing some washing or swimming. Girls of the 15-17 yrs age range that visited the river bank in the evenings did so either to wash clothes or food items. Some socialise with other girls or boys but they seldom swim in the river.

Do-Good Packaged Water Depot in Cable-Point Community

The Setting

The depot was opposite the community's market in Cable-Point doubling as a packaged water depot, wine and general merchandise shop. There was a large deep freezer filled with bags of packaged water inside the shop. To the right of the freezer, was a refrigerator also filled with bags of packaged water.

There were three attendants in the depot, two men and a woman. The woman was in charge of sales, collection and refrigeration of the packaged water, while the two men were engaged in other activities within and around the shop premises. Behind the depot is a standby 250V power generator to reduce the impact of the frequent power outages.

The depot stocks five brands of package water – Jolly, Chi Chi, Jemok, Gloria and Pitam. It receives supplies directly from these water packaging companies usually in the mornings. Some however turn up in the afternoons for one reason or the other. Between one hundred to one hundred and fifty (100-150) bags of different packaged water were delivered to Do-Good Depot on daily basis at the rate of 50Naira (1p) per bag of 20 sachets.

The People Involved in the sale of packaged water

Apart from a handful of men and women, retail sale of packaged water appears to be children's business.

Activities at the depot

Data from the field observation revealed that 'Do-Good' opens for business at about 7am in the morning and closes at about 9.30pm. The sales of package water begins in earnest at about 10am, peaks at about 1.30pm and finally ends at 5pm. Between 7am and 10am, the depot receives supplies from the different packaged water companies. From 10am, men and women start arriving at the depot to buy

packaged water. Children only start appearing from 12noon and a little earlier on community's market days⁹⁸.

Six men residing within an estimated 100m radius were seen repeatedly at the depot during the field observation. These men arrived either with pushcarts or wheelbarrows collecting between 5-10 bags of packaged water with each trip. These I learnt were the owners of smaller shops that retail packaged water in Cable-Point. They generally spend some time to pay and load the bags into wheelbarrows, leaving the depot within 20mins of arrival.

Thirteen women residing within an estimated 50m radius visited the depot repeatedly during the period of observation. Twelve of them arrived carrying large plastic bowls of between 15-20litres capacities on their heads, paid and collected two or three bags of packaged water. They normally spend some time counting the sachets, checking for leakage and left within 15mins of arrival at the depot. Only one woman repeatedly used a pushcart, transporting an estimated 10 bags of packaged water per trip and making a total of 3 trips during the period of observation. This woman I learnt was the owner and operator of a nearby food restaurant.

Children residing within 100m radius (estimated distance) visit Do-Good depot to collect packaged water because of its nearness to the market carrying small plastic bowls of about 10litre capacity. Usually, they collect ten to fifteen sachets of water at a time, spend some time counting and checking for leakage. The children arrive at the depot either alone or in company of friends.

They don't usually waste time at the depot but some may a little longer to check the money made from previous sales in order to make payments for fresh supplies. They hurry off into the streets within 3-5mins of arrival at the depot, making an average of 3 to 6 trips before the end of the day. The children usually collect chilled or even frozen packaged water from the depot thus enhancing sales especially on hot sunny days in the nearby market and streets.

⁹⁸ Ogbolie market days are days when traders and goods from all areas of Asaba and surrounding towns converge to trade in Cable-Point customarily every five days.

Motivation

These children pay 35Naira (14p) for half bag of chilled packaged water containing 10 sachets and sell a sachet of 60cl for 5Naira (2p), thereby making a profit of 15Naira (6p). The day's overall profit depends on the strength of the day's sales. Some used their pocket money as the initial capital to start the business while others were sponsored by either their parents or guardians that use these children to generate extra income for the family.

The children's cycle of buying sachets of packaged water from the depot and selling these to members of the public ends at about 6pm in the evening. Twenty-three (23) children repeatedly visited Do-Good depot during the period of observation starting their activities between 12noon and 1.30pm. Only children between the ages of 9 and 13 yrs visited Do-Good depot during the period of observation, making money either for themselves, family or guardians. It is difficult to tell whether these children attend school or not from the timing of their activities.

The Butebe-Butebe Packaged Water Depot in Otu-Ogwu:

The Setting

Butebe-Butebe depot is located on the western end of Otu-Ogwu about half a kilometre from the community's main market. It was a standard shop with facilities like a deep freezer, a table, a chair, notebooks and a generator. Bags of packaged water filled the depots deep freezer—maximum capacity of 30 bags. There were several brands of package water in the depot—Jemok pure water, De' Jolly pure water, Goody-Goody pure water, Chi-Chi pure water amongst others. Although all brands were packaged in 60cl sachets, they were however sold at different prices depending on the demand for the brand. Jemok pure water had the highest demand in Otu-Ogwu. A casual enquiry revealed that the general demand for Jemok had nothing to do with it's purity but simply due to its fancy television and poster adverts

The manufacturers come mostly in the early mornings but sometimes in the evenings to supply bags of packaged water. The depot receives supplies directly from the water packaging companies at the rate of 50Naira (20p) per bag. Four to five hundred and fifty (400-550) bags are delivered to its doorstep every two days. In front of the shop, about 30-40 bags of different brands of packaged water were arranged in neat rows on the floor. Apart from being a convenient place to leave them while waiting to cool them in the freezer, this display of bags of package water also acts as a form of advertisement to attract potential customers to the shop. Inside the shop sat the twenty-three years old lady attendant who conducts the daily sales.

The people Involved in the sale of packaged water

Butebe-butebe customers were children of between 8-13yrs of age. These children named the depot 'butebe-butebe', meaning in Ibo language 'bring more-bring-more' because of the owner's frequent use the Ibo phrase.

Activities at the depot

Data from the field observation revealed that 'Butebe-Butebe' opens for business at about 7am in the morning and closes at 6pm. The sales of package water however begins at about 11am, peaks at about 3.30pm and finally ends at about 5pm.

Children start arriving at the depot to buy packaged water at about 11am in the morning. The children come from within 500m radius of the depot but some have been reported to come from as far as 1 km radius because of the depot's location near the community's main market. They arrive at the depot carrying small plastic bowls, collect packaged water usually in tens from the attendant, spend some time counting the sachets and checking for leakage and within 3- 5mins of their arrival at the depot, hurry off towards the market making between 5 to 10 trips before the day is over. Some spend further time hanging around the depot checking the money from their previous sales or discussing events with their friends. Business at the depot peaks between the hours of 1.30pm -5.00pm and depot is usually crowded by eager enterprising children.

Motivation

As with children in Cable-Point, some were sponsored by their parents or guardians while others use their pocket money as the initial capital to start the business. The children buy a chilled bag of packaged water containing 20 sachets for #70 (28p) and sell a sachet of 60cl for #5 (2p), thereby making a profit of #30 (12p). The day's overall profit depends on the strength of the day's sales.

Sixty-three (63) children visited Butebe-Butebe depot during the period of observation. A number of them were below six (6) years but these usually arrive in the company of older family members. Children between the ages of 7 and 14 yrs were very active in the sales and distribution of packaged water making money either for themselves, family or guardians.

The children within this age range (7-14 yrs) may be subdivided into two groups.

(i) One subgroup starts their activities at the depot from around 11am and continues to the end of the business day at 5pm. These children transact business

at the depot during the school hours and are mainly house-helps, orphans and school dropouts. (ii) The other subgroup join them at about 1.30pm and stops at about 5pm. These were school children who embark on the 'pure water' business after school hours.

The countenances of the children that were seen at the depot during school hours were clearly different from those of the group that joined them after school hours. The former group most of the time wear a look of resignation while embarking on the task of collection and sales of packaged water, whereas the latter group wears that of happy anticipation, clearly enjoying the task. Those between the ages of 15-17 years were not actively involved but may be compelled to do so for a variety of reasons. In most cases sixteen to seventeen year olds usually work as depot attendants.

The children collected chilled or even frozen packaged water from the depot for sale in the nearby market and streets as this enhances sales especially on hot sunny days. The children's cycle of buying packaged water from the depot and selling to the members of the public continued until 5pm in the evening.

Ten women residing within 100m radius visited the depot during the period of observation. Seven of them arrived carrying large plastic bowls, paid and collected 2 or 3 bags of packaged water. These women spent some time counting the sachets, checking for leakage and left within 5mins of arrival at the depot. The other three women came to the depot either to discuss business with the attendant or to check on their children or wards.

Only four men residing within 50m radius were seen at the depot during the field observation. These men arrived either with pushcarts or wheelbarrows collecting 10 to 20 bags of packaged water with each trip. These I was told were owners of shops that act as sub depots within Otu-Ogwu. They spent time paying and loading the bags into either pushcarts or wheelbarrows and left the depot within 20mins of arrival. They sometimes act as children's sponsors by providing the initial capital to purchase packaged water for retail sales.

Appendix 21: A working day in the life of a Child

Ndidi.

Introduction

Ndidi is a thirteen years old girl living with her parents, grandmother, aunty, uncle and her cousins in her father's bungalow. She is the second child of six children whose ages range between 15yrs down to 11months. Her father rented out part of the house to other families.

The Setting

Her house was estimated at about 20m from the river and 100m from the nearest borehole. It had five bedrooms and a large living room which was furnished with a TV set, video (VCR), radio, Tape recorder/player and a refrigerator. Outside the house, there were two large water storage drums, four jerry cans, buckets, basins, and two very large covered clay pots with a combined capacity of about 160 litres and coated on the outside with cement. These pots were partially buried in the damp ground to allow for the natural cooling of their contents.

The space at the back of the house served as the kitchen while the toilet and bathroom were located a little distance from the house. There was a yard tap that flows twice every week for 8hrs on each occasion in Ndidi's compound.

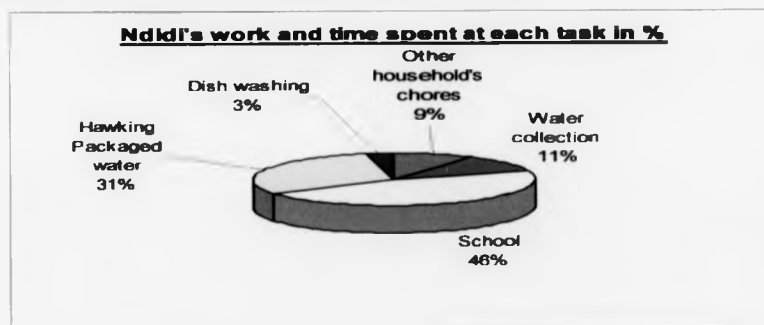
Ndidi's work activities

Ndidi's seventeen hours working day began at 5.30am when she woke up from sleep. She started the day with her private morning prayer, greeted her parents and older members of her household that she met as she walked towards the back of the house to ease her self. Thereafter she rinsed her face with water and hurriedly brushed her teeth. Teeth brushing completed, she entered the kitchen that her mother shares with the other house tenants, warms the left over food from last nights dinner on the fire, packed the dirty dishes, cutleries and cups and washed them, completing the tasks in about 20mins.

Picking up a 20litre gallon lying in a corner of the kitchen, she walked to the yard tap and tried the tap handle. On the day of observation, the yard tap stands dry. She left the house and walked an estimated 60m to the nearest borehole to fetch water. She completed the water collection task after 8 trips and each water collection trip cost 2 Naira, totalling one hundred and sixty naira. She began the water collection at 6.00am and ended it at 7.15am, with each trip taking between 8-10mins.

Ndidi had her bath, ate her breakfast, got dressed and left for school at 7.28am. School closed at 1.35pm and she arrived back home at 2.20pm. She took some time to prepare lunch for the house, ate her share of it and left the house to hawk packaged water. Hawking, started at 3.00pm and ended at 6.20pm spending about 3hrs and 20mins out in the streets and in the local market. Ndidi spent part of the profit from the sales of packaged water to buy food stuffs for the house and assisted her mum in preparing dinner as soon as she arrived back home (7.10-8.50pm). She had her dinner at 9.20pm and fell asleep while chatting with family members at 10.30pm. The summary of her working day activities is presented in Figure 9.

Figure 8: Ndidi's work and time spent at each task in percentage



Adela

Introduction

Adela is an eleven years old girl living with her father, mother, grandmother and three other siblings in Otu-Ogwu. She is the first child of her mother, although her father had other children from another wife in a polygamous arrangement where the other wife and her children reside elsewhere. Adela's father's income is mainly from house rents and the income from the sale of water from their yard tap.

The Setting

Adela's father is the landlord of a 24-room house with two rows of 12 rooms in a 'face-to-face'⁹⁹ arrangement. Eighteen tenants share this, to all intents and purposes, unplanned house with Adela's family as unplanned additional rooms were added to the original structure from time to time. Both the landlord's family and his tenants cook outside the house and their cooking stoves, pots and other cooking utensils were arranged each by their doorsteps congesting the otherwise narrow corridor.

The common bathroom and toilet was located a little distance away at the back of the house. There were two yard taps in the compound. The one in front of the building had two water outlets fitted with locks and was used primarily for commercial purposes. The other tap with only one outlet was at the back of house and was meant to supply water only for the house occupants.

Adela's work activities

Adela's eighteen hours working day began at 5.00am when she woke up from sleep. She greeted her parents, brushed her teeth and rinsed her face with water.

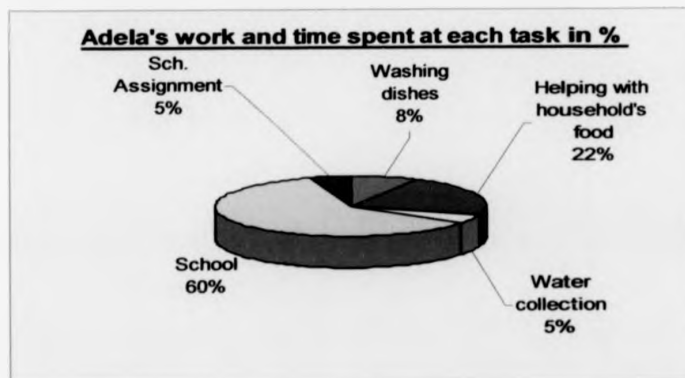
⁹⁹ Face-to-face houses are houses with rooms that are arranged directly opposite each other in two parallel rows with doors of adjacent rooms facing each other along a common corridor. The corridors are usually very dark during the day and the rooms are poorly ventilated as only one window can be fixed on one side of the room by this arrangement. Two or more rooms may be linked by a connecting door becoming what is generally referred to as room/s and parlour'

She swept their room and washed the dirty dishes completing the tasks in 45mins. She fetched water from the nearby yard tap storing the water in a drum placed near the entrance to their kitchen. She completed the seven water collection trips in 15mins. She then returned to their kitchen to prepare breakfast by warming left over food from last night dinner.

Adela had her bath and got dressed for school all within 20mins. She left for school after a rushed breakfast of bread and beans at 7.49am. Returning home in the afternoon at 2.50pm, she prepared lunch of yam porridge, washed the dirty dishes that were used in the morning by other household members and collected more water for evening use. She spent some time working at her school assignments and goes off to play with the other children in the compound.

Adela returned to the home in the evening to assist in preparing dinner which lasted for 1hr 30min while the actual cooking lasted for 1hr. 8mins. Dinner was served at 10pm. The table was cleared of plates and cups within 15mins and Adela went to bed at 10.52pm. The pie chart summarising her activities is presented in Figure 10.

Figure 9: Adela's work and time spent at each task in percentage



Chizea

Introduction

Chizea is a nine years old boy who lives with his parents in a line house shared with nine other tenants. It was a polygamous home of seventeen members including his father and two wives. There were 12 children of between 3-16yrs and two other adult extended family members. Chizea is the first child of his mother and the third of his father. His mother trades in the community's main market. Chizea did not give his consent for us to take the photograph of his house.

The Setting

Chizea's family occupy two rooms in the multi-tenanted house. In one of the rooms, there was a TV set, a video player/recorder, a cassette player, a standing fan, three upholstered chairs, a centre table and a tattered centre carpet. This room doubles as a sitting room during the day and as a bedroom at night. The other room served essentially as a bed room. The household's income comes principally from the sales of marijuana although Chizea's father's civil service job acts as a good cover for his other activities. All members in this polygamous arrangement share the two room.

The kitchen was to the left and detached from the house. Opposite the kitchen were the bathroom and toilet. Drug addicts and other drug users hang around the compound smoking mostly marijuana and other unidentifiable drugs. Fishermen use the nearby batcher to rest and mend their nets.

Chizea's work activities

Waking up at 6.00am, Chizea's 16-hour day begins with a family devotion. He greets his parents, elders, and neighbours and he goes outside the house to ease himself in a corner of the compound. These activities were undertaken in roughly 30mins. Thereafter he spent the next 25mins washing the dishes and filling the empty bottles that were normally used for storage and cooling of drinking water and placed them in the refrigerator.

Completing the task, he picked up a 15litre plastic gallon beside the kitchen wall and walked an estimated distance of 80m to the borehole to fetch water. Carrying the filled gallon on his head, Chizea made a total of five trips in 38mins having fetched and carried a total of 75litres of water. The water was stored in a big plastic drum standing by the side of their kitchen.

Immediately he completed the water collection task, he had his bath and brushed his teeth and dressed for school all within 25mins. He spent an additional 18mins for his breakfast and left immediately for school.

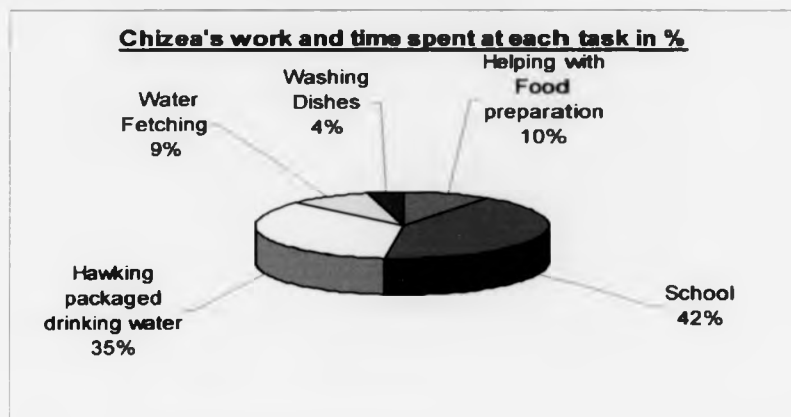
When school closed at about 1.30pm, Chizea headed straight for his mother's stall in the market to collect food items. He arrived home at 2.05pm, changed his clothing and went out to buy a bottle of kerosene and a box of matches. Upon his return, he got some of the food items he had brought back from market ready for his mum to cook upon her return to the house later in the evening.

Thereafter, he had a quick lunch and at about 2.50pm runs off with a small plastic bowl to collect packaged water from the nearby depot. He paid and collected about ten sachets from the attendant and sets off in the general direction of market. Chizea spent between 40-50mins on each trip hawking the 10 sachets of water he collected from the depot and made a total of 5 trips in all.

He finally stopped the sale of packaged water at 6.20pm and again returned to his mothers stall to account for the sales he had made from the packaged water. Back home, he assisted with the cooking by grinding the pepper used for making the dinner soup.

At about 7.45pm, he walked down the borehole to fetch and carry water again using the 15litre gallon and made a total of 4 water collecting trips while transporting a total of 60litres of water for his household. Chizea had dinner at 9.10pm and went to bed at 10.20pm after playing with friends and telling some moonlight tales. A summary of the time spent on each activity is presented as a pie chart in Figure 11.

Figure 10: Chizea's work and time spent at each task in percentage



Musa

Introduction

Musa is an eleven years old boy who lives with his parents in Otu-Ogwu. He was recruited for the study because of his daily usage of the River Niger for water collection. His household was made up of an extended family of five adult men; his father and four uncles; four adult women; his father's two wives and two aunties. He was the fifth child of a polygamous family of nine children of between 7-18yrs of age.

The Setting

Musa's house was built of hard baked mud bricks and only the front of the house was plastered with cement. The roof is of corrugated zinc and flat wooden planks partitioned the house into separate two rooms. To the right of the front entrance to the house, was a big clay pot with partial cement coating on the outside that was used for drinking water storage. Scattered around the side of the house, were

plastic buckets, basins, bowls, jerry cans and metal drums (about 200litres capacity), that are normally used for water collection and storage

The family's kitchen was built a little distance from the house and was made of four sticks and corrugated zinc that served as the roof. Smoke stained aluminium cooking pots and stacks of fire wood were arranged neatly in one corner of the kitchen. The family's goats, chickens and dogs roam freely all around the house the unfenced compound. Habitually, the household spends the hot sunny afternoons under the shade of a big tree in front of the house.

Musa work activities

Musa rose from the sleeping mat which he shared with five other children and began his seventeen and half hours working day at 5.30am. He sat down mopping for about 15mins in front of the house and finally got to his feet stretching limbs at the same time. He walked to the nearby drum, collected water with a bowl and washed his face. He picked up a 15litre gallon near the water drum and headed for the river at about 6.32am.

The River Niger was about 50m from the house and was approached through a 25m sharp slippery descent. Musa negotiated the descent carefully—wet with dew at this time of the morning—walked to the edge of the river. Standing in the shallow part of the river, he dipped the gallon into the water holding it down until it was filled with water. He then dragged the gallon out of the river, lifted and placed it on his head, turned and headed back home.

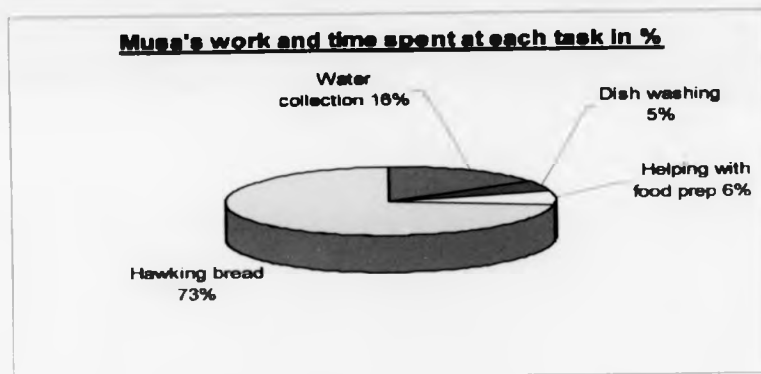
Back in the house, Musa emptied the water into the drum in front of the house and sets off for a second trip to the river. Each return trip to the river took about 16mins. Musa made 6 trips with the 15litre gallon fetching a total of 90litres of water that morning.

His water collection over, he carried a bowl of raw beans and headed back to the river to wash and remove the peelings at about at 8.17am. In the river, he repeatedly washed and rinsed the beans completing the task in 33mins. Musa left the river and went straight to a woman who operates a commercial grinding

machine in the community. He paid for the grinding of the beans and arrived back home at 9.15am. He handed the bowl of ground beans to his mother and went to the makeshift kitchen to wash the pile of dirty dishes completing the task at 9.50am.

Musa then used part of the water he had earlier collected to have his bath, changed his clothes and had his breakfast. He picked up a tray with about 20 loaves of bread at 10.18am and headed for the streets to hawk bread. He finally returned home at 6.14pm. Had his dinner immediately and played with other children from 7.20pm to 10.15 and finally went to bed at 11pm. A pie chart summarising his working activities is presented in Figure 12.

Figure 11: Musa's work and time spent at each task in percentage



Appendix 22: Overview of the Significant Findings of the Study

Findings from Pilot Study 2

Pilot study 2 was based on geographical location and involved children from high/middle income and those of low-income high-density areas of Asaba. Study results suggest that children's activity status and the resultant health implications in household's water provision vary with the types of water sources and the socio-economic status of the household's concerned.

Children's activity status

The results of the group sessions showed that children's role and activity status in household's water provision relates to the type of water source. Children from high/middle income areas enjoy water from the public network with in-house connections, self-supply boreholes, water tankers that supply household's storage tanks and occasionally fetch water from neighbours. In terms of physical accessibility, this reduces the distance that water has to be carried and usually takes less than five minutes in most cases. The task of fetching water only becomes marked when normal supply is disrupted by public power outage and household's resorts to the use of stored water.

The situation was different for children from the low-income high-density areas. Household's water sources from the reported accounts of children include yard taps; water purchased from private boreholes, the nearby river Niger, and packaged drinking water purchased from local vendors. Several families share one-yard tap and water supply was intermittent and unpredictable. Supply was further disrupted by local power cuts. When taps stop running, children either had to walk 150m uphill to buy water from a privately owned borehole or 100m down to the river to fetch water.

Views on commodification of water.

On one hand, children from the high/middle income areas, drawing on the concept of water as a free good, believe that water is a free gift of nature. People should not be made to pay money in order to have access to water. Children from the

low-income high-density area on the other hand, focused on financial, rather than "conceptual" reasons. Many families within this geographical area were poor without adequate financial means to continuously buy water from privately owned boreholes or local vendors. When the yard taps stops running, they usually wait for them to start running again before fetching (in most cases) household's drinking water. In addition, the children from the low-income area viewed helping parents with the sale of packaged water as one of the domestic activities of children. The high/middle income group believed that hawking packaged drinking water is not a normal domestic chore for children and should be discouraged.

Health Concerns

The pilot study data suggest that the reported health concerns of the participants in the two focus groups are directly related to their levels of involvement. While the high/middle income group directed their attention to the general surroundings of community water sources and the lack of supervision and regulation of the development of private water points, children from the low-income areas were more detailed and specific in their reported health concerns. According to them, household chores like fetching and carrying water results in headaches and neck sprains, stomach discomforts, cramps accompanied by diarrhoea, fevers, sun burns, bruised scalps and the risk of motor accidents will collecting water.

Findings from the Main Study

Field Observations

The field observation that was conducted within the two study communities yielded two significant findings.

- (1) That children were actively involved in household's water collection and
- (2) That children spend a considerable part of their working hours in water collection and in the sale of packaged drinking water.

(1) Children's involvement in household's water collection:

Field observations provide evidence that children were actively involved in household's water collection. Three main household's sources of water supply were identified within the two study communities. These were borehole, yard tap and the River Niger. The people identified while fetching water from the various water sources within the two study communities were Mai-ruwas (door to door water vendors), other men, women and children. When the numbers of children that fetched water from the selected sites were compared to those of adults—men and women, more children visited the various water sources to collect water for their households.

Ownership of water source

Private ownership of water point was an important factor in household's water access. Within the study communities boreholes and yard taps were privately owned. Those without ownership access to these two water sources had to buy water from water vending locations and or door-to-door water vendors. The adjacent River Niger was communally owned and supplies water to households free of charge, while rain water was free to all who can collect it.

Water Vessel

Various types and sizes of water vessels were used to fetch water from borehole sources. The types of vessels that were predominantly used within the study communities were Jeri-cans and buckets of between 5-25litre capacities. The use

of basins and bowls appear to be age and gender related. On the average, children used much smaller sized vessels of between 5-15litre capacities when compared to those used by adults—between 20-25litre capacities—to fetch water particularly when it had to be carried on the head. However, children that adopted one form of mechanical assistance or the other transported as much as adults per water collection trip.

Cost of water

The amount of money charged for water fetched depends on the size of the water container used. Water fetched with a 10litre Jeri can or a bucket of equivalent capacity cost 2Naira (8 British cents). Those between 20-25litres cost 2Naira 50kobo to 3Naira (1-1.2 British pence). During power outages when boreholes operation switches from public power supply to private generators, an additional 50kobo (2 British cents) is added across of price ranges. Water is relatively more expensive in Cable-Point than in Otu-Ogwu community.

At the yard taps, a 10litre Jeri-can or its equivalent in bucket or bowl cost 2Naira 50kobo (1 British pence) while 20-25litre capacity water vessel cost 5Naira (2 British pence). The cost of water fetched from yard taps in Otu-Ogwu community was more expensive than those fetched from boreholes in both communities. However, children of 5yrs and below who visited the water vending locations were allowed to fetch water free of charge because of their small sized containers. There were also provisions for a free drink of water as long as cups or bottles of less than 2litres were used.

Knowledge of Hygiene

Observations at the selected boreholes revealed that very little hand washing or rinsing out of water vessels before fetching water were carried out by children involved in water collection. Only a few women actually rinsed out their basins or bowls. However, women who used Jeri-cans to fetch water, like children, did not rinse out their vessels.

Distance and time spent at the water source

Most of the people identified at boreholes in this study reside within 150m of the various water sources and children spend comparatively longer time (2-15mins) when compared to adults (1-6mins) collecting water.

At the observed yard tap, children residing within 50-100m radius of the tap location fetched water from the tap. Depending on the number of people waiting, it may take between 10-30mins from the time of arrival to fetch water from the tap. Women spend comparatively lesser time at the yard tap than children.

(2) Time spent on water collection task and in the Sale of Packaged water.

The second significant finding was from the field observation tagged 'a day in the life of a child' and based on the observation of the activities of six children from the time they left their beds in the morning to the time they went to bed on that day.

The descriptive accounts of the one day working activities of the children provides evidence that children's water collection task in some cases was carried out along with other household's chores. Depending on the water service level, Adela's case provide an example of how time saving may prove beneficial for children. Due to the installation of a yard tap in her compound, the task of water collection was made considerably easier and she spent the least time when compared to the other children that participated in the one-day field observation on water collection, leaving her with enough time to play and complete her school assignments.

The combination of water collection and hawking of packaged water after school hours appears to place considerable stress on children's time. Those in the study spent on the average, 42% of their working hours on these two activities alone. The results from the one-day field observations suggest that children spend a significant part of their working hours at the task of water collection and in the sale of packaged water when compared to their other activities.

Field interview and focus group discussion

The field interviews and focus group sessions that were conducted within the two study communities yield a number of significant findings of which four are here documented. The most surprising finding was the impact of power supply on the water collection activities and children's right to water.

General Findings

1. That children perceived the task of water collection as a social obligation and custom that was handed down to them and in their understanding they clearly don't have a choice in the matter.
2. That the fulfilment of the 'obligatory duty' of water collection ensures children right to household's water.
3. That within the context of ILO's definition, water collection amounts to the denial of their human rights.
4. That power outages impact severely on children water collection activities and water rights in terms of access and use of household water.

These general findings are thematically presented in the remaining part of this chapter.

(1) Children's perspective on their experiences in household's water collection

Results from this study showed that children's standpoint on their experiences was founded on a number of inter-connected factors that were involved in the water fetching process, such as, the type and size of water container, method of carrying water, distance to the water source, time spent on the task and disruptions in local public power supply.

Type and size of water container

The size of the water container was a significant factor in the assessment of the task of water collection. The size of the container determines the volume and weight of water children have to transport. Some children complained about the weight of water that they had to carry particularly in cases where the method of transportation was on the head. Some amount of energy was required to lift the

water vessel unto the head, wheelbarrow or pushcart, even in cases where mechanical assistance was adopted.

Older children in the family were expected to carry bigger capacity containers when compared to younger siblings as they were perceived to be stronger on account of their age. Thus age plays an important role in the size of container and subsequently the quantity of water a child was supposed to carry.

From the standpoint of children, five to seven years old children (5-7yrs) should not be made to fetch water. Eight to ten years (8-10yrs), should use 10litre containers to fetch water. While eleven to fifteen years (11-15yrs) may use between 10 to 20 litre capacity containers to fetch water. Based on the assumption that water will be carried on the head, no child should use any vessel of more than 20 litre capacity to carry water. Children within the 16-17yrs age group were excluded from this weight against age grading by participants in this study.

Method of carrying water

Children that adopted one form of mechanical assistance or the other appear to find the task much more pleasant than those who carry water on their heads or by hand. In addition, this reduced the number of water collection trips as large amounts of water was fetched and stored in a relatively short time when compared to fetching water and carrying water either on the head or by hand.

The geographical terrain which water had to be transported was a major factor in the decision on whether or not to adopt mechanical assistance. Children living in communities on poor and uneven land areas (such as Otu-Ogwu community) may find it difficult to use any form of mechanical assistance. In fetching water from the river, children cannot adopt the use of mechanical assistance in the form of wheelbarrows or pushcarts because of the steep and sandy banks. Along gender lines, boys appear to adopt the use of mechanical assistance and transport more water per water collection trip than girls.

Water collection trips

In this study, water collection trips as a whole and not just the distance to the water source was uppermost in the minds of children in their perception of the task of water collection. One water collection trip may be described as the distance children walk to the water source and back to their households, this time carrying water. Sometimes, more than one water collection trip is undertaken depending on household's water requirement and the number and ages of children involved.

It was therefore possible to fetch water say five times in the morning and again, five times in the evening. The child may then be said to have undertaken ten water collection trips on that day or two rounds of five trips per water collection round. It was the daily water collection toil, repetitive water collection trips and time spent on the water collection task, from children's perspective, that makes water collection an unpleasant and difficult task.

Distance to the water source

In this study, the distance to water sources was simply estimated although an attempt was made to document some form of standard. Most of the children in this study were estimated on the average to have covered 100m or less to the various community water sources. The use of estimated distances was considered appropriate as the focus of the study was household's water provision as viewed with the eyes of children.

However, children that reportedly found water collection task easy were mostly those that collect water from yard taps or who had boreholes located in their compounds, suggesting that despite the relatively short distances reported in this study, distance to the water source still had an influence on their perceived experiences. In these situations, having the water sources as close to the homes as possible, proved most pleasant from the children's standpoint.

Frequency

Frequency in this study refers to the situation where children carry out the task of water collection either on a daily basis—everyday, on alternating days, once a week, twice a week etc. Results from this study showed that children who fetched and carried water only once, twice, thrice a week or on alternating days reported that task was 'easy' while those who had to undertake water collection on daily basis mostly described water collection as 'not easy' or difficult.

Number of water collection trips

The number of water collection trips per day influence children's perception of the task of water collection. Children who had to undertake high numbers of water collection trips found it much more difficult than those who under lesser number of water collection trips. Along gender lines, girls appear to make more water collection trips than boys.

Nature and Size of Household

Results from this study suggest that the participation of other household members in water collection and the family size appear to influence the children's assessment of the task. Participants whose other family members participated in the task of water collection reported that the task was 'easy' irrespective of family size suggesting that the participation of other household members had a positive influence on children's assessment of the task of water collection.

Children who described water collection as 'not easy' were those who had to undertake the task of water collection without the help of other household members. In these cases, the family or household size was found to be five or more members. Thus household size appears to negatively influence the children's task assessment in situations where other household members did not participate in water collection.

The reasons for the non-participation of other family members that were reported in this study may be grouped under four major headings; household members age distribution, the division of labour within the household and the make-up of the household.

Household's age distribution

Household member's age distribution plays a vital role in the assignment of the task of water collection. Family members that are considered too young may not join older children to fetch water, while children who are considered 'too old' to fetch water were exempted from the duty of water collection. The 'transition' age in which a child is considered too old to continue fetching water vary from household to household. In some it takes place as early as 15yrs while in some others it may be delayed to 20yrs.

Household's division of labour

Household member's non participation in water collection may be as a result of the division of labour within households. The duty of water collection may be assigned to a particular member to undertake irrespective of gender. A lower age limit which varies between households may be taken into consideration in task assignment; however upper limit for water collection is usually dependent not just on age, but on other factors such as household's make-up and age distribution.

Household's make-up

Household's make-up, particularly the adult-child ratio was reported by participants as one of the factors that determine whether or not other household members will join in the task of water collection. Families with only one child or old families where all other older children have left the house, reportedly account for some of the cases where a child had to undertake the task of water collection without the help of the other household members.

In other situations, the first child in a young family may be the only one considered 'eligible' to fetch and carry water on account of age. In such cases, the younger sibling may be exempted.

(2) Children's viewpoint on their experiences in the sale and distribution of water

According to the reported accounts, children play a significant role in the social distribution of water by acting mostly as part-time borehole attendants at water vending sources owned either by their parents, friends or neighbours. Children were also reported to be actively involved in the sale and distribution of packaged water by hawking small quantities of their products in the streets and local markets.

Households without the means to drill and own private water sources and are not related or friendly with those who own water sources, buy all their drinking and water for domestic uses from water vendors. Depending on household's economic status, the water purchased and used for other domestic activities may be supplemented with river and rain water collection.

An important finding is the relationship between household's socio-economic status and the decision to engage in the sale of packaged water. From the results in this study, household's economic status may have influenced the decision whether or not to engage in the sale of packaged drinking water as participants reported that their economic activities of hawking package water was either to support their families or help in meeting their education costs. Paradoxically, children's participation in the sale of packaged water in order to meet the educational costs to remain in school, from their viewpoint, also affects their academic performance and accounts for some cases of school drop outs.

(3) Children's understanding of the duty of water collection

Water collection was understood as a duty and responsibility that was exacted of children by social custom. It was a social obligation that was handed down to children and they clearly don't have a choice in the matter. In addition the responsibility for household's water collection was perceived as an essential prerequisite for proper upbringing of children. The idea of work was thus internalised early in lives of children.

Children's viewpoint on their role in household's water collection

Starting from the premise that collective rights override the individual rights of household members, children consider their role in household's water collection as appropriate. Two major issues were uppermost in the minds of children that were actively involved in collecting water for households.

(1) The generational issue of age in relation to duty and rights

From the viewpoint of children, fetching and carrying household's water is the duty and social role that 'good' children are expected to perform. It was considered rude and inappropriate in their understanding for children to be seen 'sitting around' while adults in the household are fetching water for them to use. Children's role in fetching water for household's use was perceived as a way to show respect and demonstrate their obedience to adult household members. In their understanding, adult members have had their share of water collection when they too were children.

(2) Contribution to the collective welfare of households

Children living under situations of water scarcity are expected to help in meeting the water needs of households by fetching and carrying water. This was particularly important in disadvantaged communities where households had to buy and carry water from vending locations some distance away from their homes. From their standpoint of children, since they don't earn money and adults provide the money to buy water, it was only appropriate as their contribution to the family, to take up the responsibility of fetching water for their households, thus leaving adults with more time to engage in money earning activities.

Some participants in this study believe that the role of children in fetching water for adults to use was inappropriate. They hinged their argument interestingly on generational and rights issues. From their viewpoint, adults are older and stronger thus better built physically to withstand the stress of water collection than children. They argued that adults mismanage and misuse water collected and stored by children within the household. In their view, children should have total control over the water they fetch rather than the situation where children access to

household water are sometimes restricted while adults who did not fetch water had complete and unrestricted access.

(3) Children's viewpoint on water collection duty for non-family members

Interestingly, participant's viewpoint on the issue of duty and appropriateness of the task of fetching water was totally different when applied to non-household members. From their standpoint, children are neither obligated nor duty bound to fetch water for non-household members. It was left to the child involved whether or not to fetch water for people outside their households.

Presenting household's water collection within the context of the economic activities of work done by children for family and non-family members as defined by the International Labour Organisation, the study participants described household's water collection task as child abuse even when carried out within the context of their own homes. Their view was founded, not in terms of economic exploitation and time spent on the task, but in terms of the labour exploitation of children, the inconveniences of forced water collection, and the loss of children's human right to rest and recreation.

(4) Children's understanding of age and water collection duty

Children that attain the 'transitional age' are automatically accorded the 'right of access' to household's water as those accorded adults without their further participation in household's water collection.

This 'access right to water' extends to the water sources. Adults and children that have attained the 'transition age' were not supposed to queue for water behind younger children. Children for their part are supposed to respect them by giving up their turn to fetch water. Thus younger children spend longer time at the water sources when members of this group converge at a water source particularly during power outages when hand full of water boreholes are functional.

Transition age

Children at a point in their lives are considered 'eligible' to take up the responsibility for water collection. The lower age limit, from the viewpoint of children, should be set at 10yrs based on their experiences and assessment of the task of water collection. Below this age children should not be made to fetch water for households.

The upper age limit when a child is considered too old to continue to fetch water for household, in this study is referred to as the 'transition age.' This transitional age may be attained long before a child is 18yrs and varies between households and between communities. In some households, it may take place as early as the age of 15yrs and for others, children may continue fetching water well past the age of 18yrs.

Factors that influence the attainment of the 'transitional age' were the number and age distribution of household members who are considered 'eligible' to carry out the task of household's water collection.

(4) Children's understanding of their right to household's water

Three major factors that influence children's access right to water were identified based on household's socioeconomic status or economic activities in relation to water supply. These three factors were drawn up from the reports of children that some household's don't buy water—Category I, some buy water sometimes—Category II, while some others had to buy water at every use—Category III.

Category I and Children's right to household's water

Children from households that 'don't buy water' had unrestricted access to household's water. According to these group of children, they had unrestricted access to household's water because water was either supplied from boreholes via in-house connection or that water points in the form of boreholes or yard taps were located within their compounds.

From the results of the study, children who reported that though they 'don't buy water', yet their access and use of household's water was restricted were children

who do not own a water source, but had relatives or friends that own water points and allow them to fetch water from those sources free of charge. The quantity of water that household members were able to fetch and carry back to their own homes from these sources (household's water availability) was the limiting factor.

Category II and Children's right to household's water

Data from the study revealed that children who reported that they buy water sometimes yet had unrestricted access to household's water were those that had yard taps or boreholes (without standby generators) located within their compounds or had free access to relatives and friends water sources.

On occasions when they can not fetch water from the usual sources (mostly due to power outage), they buy water from alternative sources. In their understanding, their unrestricted access to household water, even when it was purchased from other sources was due to the fact that they either fetched the water or participated in household's water collection. From their standpoint, the right of children to household water can only be achieved through active participation in water collection.

Category III and Children's right to household's water

The third group of children were those from households that had no access to free water. Some of the children reported that their consumption and use of household's water was not restricted despite the fact that access to safe water involves monetary transactions. In their understanding, their involvement in fetching and carrying water confers on them the same right of access and use of water as those of adult members of their household.

Some children in this category were however restricted in their consumption and use of household's water although they participated in water collection. The major factor responsible for the restriction of children's consumption and use of water was the quantity of safe water available to household members. Factors that in turn influence the availability of household's safe water were

(i) Physical access or transport of water from the sources to households.

The perceived 'suffering' involved in the task of fetching and carrying water limits children use of water household's water for personal needs. By cutting down on the quantity of water used in meeting their personal needs, these children hope to save enough for the use of other household members thereby reduce the number of water collection trips they had to undertake.

(ii) Socio-economic status

Another issue that was important to children was the economic status of households and the ability to pay for water. Being aware of their household's financial condition, children involved in water collection cut down on their personal use of household's water to the detriment of their health and personal hygiene. From the viewpoint of these children, since 'money is required to buy it', they have to 'measure it carefully' when they use it so that 'the water will not finish quickly'.

(iii) Generational issues of rights

In the struggle for the water within households, children are always the first to loose out to adults because of their low position on the traditional generational ladder of rights. The right of age applies in adult-child relationship within the same household in terms of the right and use of household water. The older you are the more unchallenged right you have to household water. The traditional understanding that participation in water collection confers the right to household's water on children is overruled in adult-child interaction as water fetching is understood to be the customary duty of children. The predictable outcome of these interactions leaves little or no water for children to meet their own personal needs.

In child-child interaction between children from the same household that have not attained the 'transition age', responsibility for water collection confers the right of consumption, use and control over water collected while the access right due to age (as it applies to adults) was played down. With the exception of children that have attained the 'transition age', children that participated in water collection had

more control over water they had fetched than other siblings who did not participate in water collection.

As an illustration, in the child-child interaction between two children that are 'eligible' for water collection, the younger sibling may have complete right of consumption, use and control over water s/he fetched than the older sibling that did not fetch water.

(5) Children's viewpoint on the commodification of water

Children's attitude and views on the commodification of water in their communities were shaped by their experiences including their understanding of its scarcity. Two major issues were uppermost in the minds of these children living in disadvantaged communities. The first was the economic impact on family income shaped by their concept of water as a 'free gift of God'.

The second was the poverty levels in their communities. Poverty, from their reported accounts had resulted in frequent adjustments of household's food budget in order to raise extra money to secure access to safe water. These children appreciate and accept the economic realities of household's water supply within their communities. In their understanding, money had to be paid to water vendors in order to meet the initial investment, operational and maintenance costs on the owners of these water sources.

The necessity of meeting household's water requirements and the fact that water was not offered free of charge, in their understanding, meant they had to 'like paying for water.' The verb 'like' within the context these children applied it does not mean that they found the conditions that necessitated their paying for water 'agreeable' or 'enjoyable', but as an expression of helplessness.

(6) The health implications of children's involvement in households water collection

Children's experiences and risk perception at water sources

Due to their activities in household's water collection children converge at borehole locations and yard taps to queue for water. A lot of adult-child and child-child interactions take place at these locations. Arguments over who should take turn to fetch water and how much to pay for the water collected are common and sometimes results into fights.

From the perspective of children, private ownership of water sources presents a special risk to girls. Children from the two study communities expressed concerns over cases of sexual harassment involving girls at borehole locations as their water collection duties leads them to visit and enter into private premises. Some owners and or their children residing within these premises take the opportunity to sexually harass girls.

As a water source, the river in the understanding of children, presents its own special risks. Children who visit the river to fetch water are most times tempted to seize the opportunity to bath and swim in the river. As a result some children have been swept away to their deaths within the two study communities. The probability of children dying from drowning from reported accounts was much higher during prolonged public power cuts when more children were forced to visit the river for water collection.

Concerns on quality of water supplied to the community

Public network supply and Private boreholes

In this study, the children from the two study communities displayed and expressed a marked preference for water supplied via yard taps that were linked to the public network. In their understanding, water supplied via the public network had undergone proper treatment. It was therefore considered safer for consumption when compared to water supplied to households from the other sources.

From the reported accounts of children, water collected from some borehole sources were either coloured, with funny tastes and/or having particles. This was particularly so when water was fetched from the temporary storage tanks at water vending locations immediately after water was pumped into them from the underground water table. Most times household members had to wait for the particulate matter in the water 'to settle' and the bottom of the vessels before use. Most borehole owners rarely wash their water storage tanks because of the money and risk of washing tanks raised on high platforms. For these reasons, water from most boreholes had to be boiled and filtered before consumption. Others add 'alum' and some other chemicals to purify the water before consumption.

As of the time of this study, no form of supervision or control exists or is required before a private individual can embark on a water drilling project. Households are left to their own devices and saddled with the responsibility for determining water quality as well as ensure the safety of their members. This has severe implications not only for borehole owners but also for the general public who visit such these boreholes to buy water for household's use.

Packaged drinking water

A number of children in this study believed that packaged water was more hygienic thus more suitable for drinking than water obtained from the other community sources. Others however expressed serious doubts about the quality of locally packaged drinking water. From their perspective, the general demand for packaged water had nothing to do with its quality. According to their reported accounts, some brands of packaged water had an after taste that leaves little to be desired. Others lost their quality long before the indicated expiry date with severe health implication for children. However, the inefficient supply of water from yard taps, the contaminated water and sometimes particulate water from boreholes continue to increase the demand for packaged water.

Children's health concerns in relation to water transport

The children from the two study communities reported on a number of clinical and physical symptoms that were linked to the type of method they adopted for water transportation. These symptoms include weariness resulting from physical exertion, general body aches, chest pain, headaches, neck pains, pains in the leg, internal heat, and bodily.

Children that fetched water by adopting one form of mechanical assistance or the other appear to find the task much more pleasant and reported less physical symptoms in comparison to those who carry water on their heads. However, a number of symptoms were linked to the use of wheelbarrows and pushcarts. These were inflamed palms, back and shoulder pains, stiffness of the back and neck, general body aches and fatigue. Depending on geographical location of the community, the use of wheelbarrow creates an additional risk for children. Bodily injuries could be inflicted on children when wheelbarrows topple over due to overload or uneven ground.

Those who fetched and carried water on their heads reported that they had headaches, felt pains in the head, neck, chest, general body aches cold symptoms, internal heat and general fatigue. Carrying water on the head becomes particularly tricky when walking over uneven ground, inclined planes and slopes as the case with children that visit the river to fetch water.

(7) Cost of water and Power supply

One of the interesting results in this study was the impact of electric power in the supply of water to households in disadvantaged urban communities. Apart from the River Niger and rain water, all other sources within the two study communities were powered by electricity that was supplied through the public power network. All the boreholes in Cable-Point and Otu-Ogwu communities were all connected through electrical wirings via compounds housing them to the public power network.

The Urban Water Board's overhead water reservoir was run and maintained by the Delta State Urban Water Board's management. It supplies water to the entire yard tap network in Otu-Ogwu. The pumping station located within the board's premises was connected to the public power supply. Its generator had since broken down, thus yard taps supplied via the board's reservoir were completely under the control of the board's water pump which relies entirely on the public power supply.

This meant that the installation of private standby generators in the compounds housing these yard taps made no difference during power outages. Public power outages in these disadvantaged urban communities meant the complete transfer of water supply from yard taps linked to the public network to only those borehole owners with standby generators.

On these occasions, which were frequent and unpredictable in the two study communities, additional costs are added across all price ranges of water. The additional cost, from the reported accounts of children, is as a result of the additional cost for the fuel to run the standby generators. Those who cannot afford the added cost either turn to water that was previously stored in their homes or to the river for their supply of water, while waiting for public power supply to be restored.

Appendix 23: Words and Specific Language Use

Word/phrase	Contextual Usage by Children
'Buta'	<p>This is a 75litre cylindrical plastic vessel that comes mostly in black with an elephant engraved on it. It is used mostly for water storage and may be placed either inside or outside the house depending on the availability of household's living space. During water scarcity, water stored in 'buta' may be used for cooking and other domestic purposes.</p>
'Enjoy fetching water'	<p>This in most cases, does not necessarily refer to 'enjoying' the tradition of water collection as in deriving pleasure from the task, but is mostly used in this context, as in 'role acceptance' or 'submission' to the system.</p> <p>Respondent's, when asked why they 'enjoy fetching water' replied, <i>'because it's my duty'</i>.</p>
Gallon	<p>Refers specifically to plastic water vessels which are manufactured in 5, 10, 20, 25, 30 and 50 litre capacities. 'Gallon' in respondent's usage, does not refer to a 'measure' of any sort, but simply as a 'noun'.</p> <p>The name 'gallon' was acquired from its initial usage in the oil industry when it was manufactured and presented for the sale of automobile oil in four litre 'gallons'. Larger sizes were later produced and sold as water containers by a number of plastic companies for the growing numbers of</p>

households without direct access to water supply.

Or

Since metal buckets and basins were previously used for water collection, these new water containers, because they were made of plastic, were for convenience sometimes referred to as 'rubber'.

Rubber

Or

Jerry cans became an added name when these containers found a new use in the transport and storage of petroleum products during the recurrent periods of scarcity in Nigeria.

Jeri-can

**'Government
provides water'**

When used in this context implies that government is supposed to and may have provided water for certain sections of the population but not necessarily for the speaker.

**'Like paying for
water'**

In the water context of these communities, does not necessarily refer to the act of paying for water collected, but as a form of agreement or compliance to the commodification of water

**'Making water
available to the
house'**

This simply refers to the process of fetching and carrying water from the source to the house for temporary storage.

'Money is scarce'

As used in this context refers to household's income either as household's financial reserve or socio-economic status.

Appendixes

My 'portion'	In it's collective duty usage, commonly refers to one's duty as judged or in relation to other duties that includes it within it's collective whole—a sort of 'duty' proportionality. It may also refer to individual responsibility as part of a collective responsibility.
My 'due'	'Due' or 'portion' is used in this contextual application as 'that which is due or deserved' as part of a 'collective whole' and not singled out as an individual 'entitlement'.
Power Cut	An interruption in the supply of electricity to a particular area (Universal Dictionary 1994).
Power Outage	A temporary suspension of operation in electricity supply (Universal Dictionary 1994)
'When Nepa takes light'	National Electric Power Authority (NEPA). Because of the frequent power cuts and outages in the two study communities, children respond to power outages with the exclamation Nepa! In this usage, 'when Nepa takes light' means when there is either power cut or power outage.

'Part of growing up'	Refers to an essential learning stage in the overall process of transformation from childhood to adulthood. It is mostly used the context of the acquisition of coping skills.
Piped household	Households with direct access to water supply either by links to the public network supply or private borehole through an internal network of pipes
Pump	'Pump' refers to water outlets or taps with connections to the town's public water network system. It is commonly used with specific reference to either public or yard taps
'Pure water'	Drinking water provided and sold in 60cl plastic sachet is locally referred to as 'pure water.' Though referred to as 'pure water', this however is not in anyway linked to its perceived water quality by community members.
'Served' or 'piped'	Household's with pipe-water infrastructure that is linked to the public network either via an in-house connections or yard taps for its water supply

This is a phrase used for clean water that can only be fetched from certain sections of streams and rivers for drinking purposes.

'Settled water'

Children move a little up-river in order to fetch water that has not been turned murky by the activities of people in their immediate surroundings. The probability of fetching clean water in this manner is improved by an early visit to the river before others start arriving.

Thus 'settled' in this context, refers to water that is free of visible particles. In other usages, it may imply that the visible particles in the water have 'settled' either at the bottom of the river or at the bottom of the water vessel.

'They'

It is the usual practice in certain traditional African communities for children to refer to an adult, not in the singular, but in the plural form as a sign of respect. Hence 'they' in this form of usage could refer to one adult as well as several adults.

**Un-served
or
Un-piped**

Household's without pipe-water infrastructure or direct access to water supply. To meet household water requirements, members fetch and carry water from the source to their homes.